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ABSTRACT

This publication contains interim reports from 26 programs developed at 22 British higher education institutions in response to a government "White Paper" that called for development of more flexible patterns of teaching and learning. Each description includes the institution's title, names of key personnel, short description of the second year of operation, list of aims and objectives, and description of project progress, outcomes, and evaluation. Project topics included distance learning for offshore workers; courses in Information and Library Studies; courses in Engineering; self-managed learning groups; training teaching support staff; bilingual modular multi-level provisions in Wales; open learning methods at the undergraduate level; program integration for daytime, evening, part-time and full-time learners; materials for self-paced learning of Basic Discrete Mathematics; recruitment of mature and nontraditional students to science and technology degrees; flexible degree programs; effective learning; rural access programs; personalized instruction material and procedures in mechanics; a regional awards program; a summer school program; accelerated route to a degree; syndicate group work and competency profiling; flexible course provision for learning capability enhancement; extended access links; Hypermedia for flexible course selection; evening degree programs; peer-tutoring; programs for non-traditional students; and training for teaching assistants and graduate student teachers. (JB)

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# Flexibility in Course Provision in Higher Education

## Annual Report
## November 1994

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# Flexibility in Course Provision in Higher Education

## Annual Report November 1994

compiled by Winnie Wade and John Sutton

Flexible Learning Initiative
Loughborough University of Technology
November 1994

The Flexible Learning Initiative at Loughborough University of Technology has been commissioned by the HEFCE to co-ordinate and disseminate the results of the Flexibility in Course Provision programme.

This document is a compilation of interim reports of the projects which were funded under the Flexibility in Course Provision programme. Reports were provided by project co-ordinators and have been compiled as received. They are ordered alphabetically according to the geographical location of the university.

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# INTRODUCTION

In 1992 the UFC initiated a programme to encourage flexibility in course provision. The purpose of this programme was, in response to the Government's 1991 White paper, to promote the development of more flexible patterns of teaching and learning and the review of the content and structure of courses.

In the 1992-3 academic year, support was provided for 28 varied projects at 22 Higher Education Institutions. The Flexibility in Course provision Annual Report provides an overview of the second year of the programme. The aim of the report, which has been compiled from individual institutional contributions, is to disseminate the results of the second year of the programme within the higher education sector.

# DEVELOPMENT OF DISTANCE LEARNING FOR OFFSHORE WORKERS

*Project Co-ordinator* Sue Barrett

*Institution* University of Aberdeen, Aberdeen, Scotland AB9 1FX.

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*Abstract*

The second year of this project has seen two separate but related activities. One activity was a direct follow-up to the initial research and this was to compile a booklet which included the courses that are already available in distance learning format and which meet the needs of the people who work offshore. The second activity was the further development and delivery of the first phase of an intended three phases of a Post-graduate qualification in Project Management. The certificate phase begins its second delivery in the autumn and the diploma phase begins its first delivery at the same time. The whole programme will be translated into distance learning format and it is anticipated that this will reach a very wide market.

*Aims & Objectives*

The aims for the second phase of the project were :

- to raise the awareness of the offshore workers to the opportunities available to them in the form of distance/open learning packages that lead to vocational qualifications of a technical nature;
- to run a pilot study skills programme offshore;
- to develop a course within the university that offers flexibility in delivery;
- to further develop this course to be delivered in distance learning format.

*Progress of Project*

1) A booklet was compiled after receiving responses to an invitation which was sent to technical colleges throughout the UK. The colleges were given a synopsis of the research and asked if they had any courses that they thought might be relevant to this workforce, that are delivered in an open format. The booklet was distributed at the heliports and through the oil companies. It was felt important the oil workers should get the information directly because during the research it had become apparent that training officers are in receipt of information from course providers but this information does not seem to be passed on to employees as a matter of course. It was felt that raising awareness of the availability of courses was a valuable outcome to the research.

2) The pilot study was being developed using study skill materials that the Centre for Continuing Education already uses for its Highland and Island distance students. It was not planned to offer a one hour tutorial time as is the case with the present delivery, but to use the material as a stand alone package with tutorial support by phone.

   It had been planned to run the pilot programme with the help of one oil company on its one platform which is due to close down shortly. This company had already taken part in

the second stage of the research. The pilot programme was to have been a way of helping the training department to help the staff that would be made redundant think more seriously about their training needs. Enthusiastic support was received and assistance was promised to help run the pilot programme. However, despite phone calls and letters, the promise was never fulfilled. When relying on goodwill, it is very difficult to push the point too far and this phase was never delivered. There is, however, plenty of research that has been documented to indicate the problems associated with distance learning and this was read with great interest. The previous research offshore had indicated that actually delivering courses to the workforce while they are offshore would be beset by difficulties even with the support of the oil company who runs the platform. It is more likely that people who do decide to study will do so in their leave.

3) The post-graduate qualification course in project management that was developed was an area identified in the research as being of interest for qualification and an area where the university has the relevant skills to develop such a course. The course is designed to have three exit points, at certificate, diploma and eventually MSc. The course is designed to have a wider appeal than just the offshore market. However, in its first delivery 90% of the students were involved in the oil industry. The course was delivered over a series of intensive weekend sessions which allowed the students to continue in their full-time jobs with very little disruption to their work. The weekend delivery was very popular with the students and they indicated almost unanimously that they wished delivery of the diploma phase to continue over the weekends. The course is delivered on a modular basis, allowing some students to study at a slower pace. The pilot course attracted 36 students. Two declined the offer at the last moment, one dropped out, two completed one module and their jobs took them away from Aberdeen, 3 took just two modules and 28 successfully completed the four modules required to complete the certificate. 25 have indicated their desire to continue immediately to the diploma.

4) It is anticipated that by the time the project co-ordinator's funding expires at the end of November that the certificate will be available in distance learning format. Further funding has been sought from the EPSRC to continue with this work. The certificate should be ready for a January launch in distance learning format.

*Project Outcomes*

The research in the initial stages brought out some valuable information about the target group. The problems associated with their long working hours will make face-to-face delivery to a "group", even spread over a number of North Sea installations, using the most advanced technology, will be a near impossibility. The researcher did manage to raise awareness in a small way during the research phase. The booklet is a direct result of the research and sets out to raise awareness in a wider group and also provides contact names and addresses for further information.

The development of the project management course for face to face delivery meets many of the requirements of flexibility in course provision. It is delivered at weekends allowing students to continue in their full-time employment. Some of the students do not have formal qualifications but all have relevant practical experience in the subject area being studied. 40 students have been accepted to begin the second delivery of the certificate.

The course will be translated into distance learning format for a January 1995 launch. Already, the opportunity for selling this course to students farther afield is realistic as one of the students who has successfully completed the certificate phase has moved to the middle east with his job and another is soon moving to the far east. They both wish to continue with their studies and

this will soon be possible.

*Project Evaluation*

The aim of raising awareness is difficult to evaluate. The production and distribution of the booklet should have met this aim.

The pilot programme did not take place through no fault of our own.

The success of the project management course can be evaluated by the number of students wishing to continue with the diploma and the 40 students who will be starting on the certificate in the autumn.

The distance delivery should begin in January 1995. There is already a list of people who wish to undertake the project management course in this format.

The project has raised awareness in the major oil companies that there are possibilities for delivering training to employees while they are offshore. This will require a certain amount of capital input on their part but informal talks are taking place that indicate that distance learning for offshore workers could become an important development for this university. The scale of financial investment needed for such a project is outwith the scope of this research project.

# SUPPORT MATERIAL FOR SELF-MANAGED LEARNING GROUPS

*Project Co-ordinator* Dr. Ann Chadwick.

*Institution* University of Aberdeen, Centre for Educational Development, Edward Wright Building, Dunbar Street, Aberdeen AB9 1FX.

*Abstract*

During the first phase of this project, material to assist students with self-managed learning in small groups was developed. The second phase of the project has involved the evaluation of this support material by students in the Departments of Engineering, English and Geography. The evaluation revealed that the material was clearly presented, relevant, helped students with their group work, and should be integrated with specific course material. The pilot studies carried out during the project have identified the support needed by academic staff when introducing this type of learning onto courses. To provide this, written material and a staff development programme are being prepared.

*Aims & Objectives*

The overall aim of the project is to develop guidelines for the establishment of student groups who learn together with only limited involvement of a tutor. The first year of the project focused on evaluating the experience of the students working in groups in four departments and resulted in the production of a generic guide to group work for students. The objectives of the second phase of the project were to :

- evaluate the student material in pilot studies;
- identify the needs of academic staff facilitating student-managed group learning;
- develop support material for academic staff.

*Progress of the Project and Outcomes*

*Student Support Material :*

The student support material was evaluated by 202 students in the Departments of Engineering, English and Geography who used it during specific group tasks that they were involved with as part of their course. The cohort included first, second and third year students and the tasks they were set included preparing a group presentation on a topic associated with their literature course, researching material for a public enquiry in which the students had different roles, and researching software requirements for various businesses. The evaluation of the support material involved :

- a questionnaire to all students;
- group interviews;
- individual interviews.

The evaluation results revealed that 20% of the students who were given the guide had not used or read it. This raises an issue about the response to support material and reinforces anecdotal evidence that such materials are never used by some students. Of those who had read it and responded to the questionnaire, the majority stated that :

- the information was presented clearly;
- the information it contained was relevant to their group project;
- the guide helped them to understand how to work in a group;
- the guide should be integrated with specific course material.

The latter point indicates that support materials should be an integral part of the information students receive from the tutors, which was the case in some of the earlier pilot studies of the project. In order to enable the guide to be used in this way by course tutors, a version is available on computer disk so that information about the management of group work can be integrated with other course material. One department is doing this during the current session with their course booklet for second year students. In the questionnaire, the students were asked whether they would find the guide helpful during the remainder of their time at University; it was surprising to find that only a third of the first year cohort responded positively. During the interviews with some of these students, it became obvious that they had no perception of the type of learning experiences they would encounter during the degree programme, and examination of the introductory handbook given to these students showed that no such information was given.

The feedback from the students has been used when designing some additional material for the guide. This material includes; examples of ground rules, meeting agendas, checklists, and an indication of the problems that the group might encounter. The feedback from the pilot studies revealed that many students had no implicit understanding of the advantages that group learning can offer; only when these were discussed and made explicit did students recognise the skills developed and accept that these skills would be beneficial to them throughout their University programme and in future employment. In none of the pilot studies were students encouraged or given an opportunity to reflect upon their experiences in the group or "debriefed" as part of the group activity, although this is considered to be an important aspect of experiential learning (Kolb, 1984). In order to enable students to do this independently, a "Reflection and Evaluation" section has been included in the guide, which contains statements to encourage students to reflect upon the collective experience and their role in the group.

The completed student guide entitled "Group Work - An Introductory Guide for Students" is available and considered to be most suitable for use by students involved in task-based small group work.

*Staff Support :*

During the pilot studies, the Centre for Educational Development has worked closely with the academic departments and, in some cases, given support to staff in the design of the group activity, determining assessment criteria and preparing student handouts. The indication is that individuals and departments may need some support when introducing this type of learning on their courses, and a working group of the project co-ordinator and academic staff with experience of group activities has therefore been established to identify the content of support material for tutors. This material, which is currently being prepared, includes information on; background educational theory, the tutor's role as facilitator, setting up the groups, providing train-

ing, assessment issues, case studies, examples of assessment procedures, training guides and evaluation forms.

In the Department of English, a staff development event was held by the project co-ordinator where the student and staff feedback from the group projects were discussed. This event enabled exchange of ideas by the tutors involved and resulted in an improvement in the assessment criteria and the setting up of a training workshops in presentation skills for students in the department. This should be seen as an example of good practice, especially in large departments where several tutors maybe involved in the group work.

A series of staff development events on student managed learning groups has been planned during which the results of the project will be disseminated and staff encouraged to consider how to introduce this type of learning in their course. A workshop on the assessment of group learning will be included.

*Project Evaluation*

The success of the pilot studies is indicated by the fact that the group projects are being refined and embedded as part of the mainstream activities of the departments involved. A full report has been submitted and a presentation given to SHEFC, which has extended the funding of the project for a further year. During this year the tutor's material will be finalised and dissemination of the support materials and the results of the project, through workshops, conferences and networks, both within the University of Aberdeen and to other HE institutions will take place.

*Reference*

Kolb, David A (1984) *Experiential Learning*, London : Prentice Hall.

# Initiation of a Distance Learning Undergraduate Degree Course in Information and Library Studies

*Project Co-ordinator* Christopher M. Baggs.

*Open Learning (OLU) members* B. Jill Barber (till July 1994),
Tanya C. Rogers,
Julia A. C. Jenkins,
John Nelson,
Julie A. Evans.

*Institution* University of Wales, Department of Information and Library Studies, Llanbadarn Fawr, Aberystwyth, Dyfed SY23 3AS.

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*Abstract*

This undergraduate degree in Information and Library Studies by distance learning is the first of its kind to be developed in the UK and Europe. It provides access to higher education for many who are unable to take advantage of existing provision, allowing them to work at the time, place and pace which suits their individual needs. The flexible structure of the course necessitates careful individual monitoring of student progress. Student support is crucial to avoid problems of isolation and loss of motivation, and is provided by study schools, student networks, including a newsletter and organised meetings, personal counselling via a hotline service, adequate resourcing and other features. Open learning is costly and time-consuming, requiring specialist skills, but external funding and training opportunities have helped achieve the necessary quality. Future developments include the increased application of appropriate information technology to extend the range of teaching media available, whilst print materials are revised and updated as part of a thorough and ongoing process of evaluation. There are two intakes of students per year, in December and June, the first having taken place in December 1993 and June 1994.

*Aims& Objectives*

The aim of this project is to provide flexible access to higher education for those working within the information profession who are unable to benefit from full-time or part-time courses currently on offer.

To achieve this aim a number of objectives were identified, concerned firstly with access and secondly with flexibility. Firstly, to develop a scheme which would provide access for those facing geographical barriers because of work or family commitments; to provide access for non-traditional entrants with an appropriate level of work-based experience, and to provide a route for career advancement by developing a course leading to a professional qualification. Secondly, to develop a scheme which would allow for flexible progression, enabling students to work in their own time, and at their own pace and place; to create opportunities for students to plan their own course of study through a chosen pathway, and to relate their learning to the workplace; to develop learning packages incorporating a variety of media and materials appropriate to individual learning styles.

***Progress of Project, 1993-94***

During this year the first two intakes of students on to the course have occurred, namely 28 in December 1993 and 27 in June 1994. The HEFCW agreed quota was for 50 bodies or 25 FTEs per year, so the target figure is being achieved. Applications are running at such a level that both the intakes for December 1994 and June 1995 are also complete.

The move from planning to implementing and running a course has occasioned a major switch in the OLU's operation. Pressure has grown to produce and deliver the rising number of learning packages required by students pursuing the degree. (Continued training in desktop publishing skills has ensured the maintenance of the quality of those learning packages). This pressure together with the loss of the OLU manager in July, the continuing need both to train new academic staff in producing distance learning techniques, and to extract the learning materials from established staff has concentrated the team's efforts into simply meeting the student demand. Earlier expectations of developing more IT oriented teaching packages have been curtailed, although the use of computer conferencing for student communication is under active consideration. The general use of e-mail is precluded as students are only required to have access to computer facilities. This factor will necessitate major considerations of course delivery and course content in certain subject fields.

To monitor student progress the OLU has developed its own internal administrative database. Student self help groups have been encouraged and the OLU produces a regular newsletter for all the students in the Department studying by distance learning to bind the student body together and provide an identity. Study schools at the beginning of the course have helped create that group identity, and a regional meeting between students and staff took place in Edinburgh. A hotline service for student enquiries is run by the team and is proving extremely useful. It operates specifically on Wednesday evenings between 8pm and 10pm and Saturday afternoons between 2pm and 4pm. These out of office hours were deliberately chosen as the student body is overwhelming in full-time employment and needed access to the Open Learning Unit during their likely study times. Requests are passed to academic staff, for attention, as appropriate.

In response to student demands for required reading materials, the Departmental Library was given extra funding to establish a separate loan collection for distance learning students. Photocopied items, within copyright restrictions, are also sent to students on payment of copying charges. Copyright issues have also been addressed in respect of material required for inclusion in the printed teaching packages. The OLU has established operating mechanisms for dealing with copyright holders.

Within the Institution the OLU has continued to play a major training and advisory role in Open and Flexible learning, and the development of distance learning courses.

Training in open learning and desktop publishing skills have been given by the OLU to other members of the Department. The OLU has taken over administrative control of all the distance learning courses offered by the Department (over 300 students - undergraduate and masters), including organising various study schools, the despatch of learning materials to students, monitoring the receipt and return of course assessed work and student support.

A replacement for the OLU manager, B Jill Barber, who left for another post in July 1994, is expected in November.

*Project Outcomes*

These are best viewed under two headings - general and specific :

a) *General :*

- the Open Learning Unit has been fully embedded in the Department's profile and the Institution with the probability of permanent funding;
- a flexible distance learning undergraduate degree in Information and Library Studies validated by the University of Wales has been launched;
- collaborative schemes with the Open University, Napier University, Edinburgh and the Institute of Public Administration, Dublin have been discussed;
- the academic staff of the Department are now able to deliver their courses in either traditional or distance learning mode using Open and Flexible learning methods.

b) *Specific :*

- two intakes totalling 55 students have been made;
- no student has 'dropped out' officially so far;
- the quality of work produced by the students is generally of a higher standard than the traditional full-time students;
- students have access to literature required for the course;
- counselling, tutorial and support network facilities for students have been put in place;
- 11 distinct modules will be available for the students by December.

*Project Evaluation*

The initial aim of establishing the degree course has been achieved. In so doing a clear need in the market has been met. Students continue to be predominantly mature women returners in their 30s and 40s. The geographic spread continues to be broad with a major response from Scotland where an HNC course in Information and Library Studies by distance learning is already in existence. More applications are being received from both parts of Ireland, although some areas of the UK are still under-represented. Most applicants are from the public library sector, or the schools library sector where there is a need for trained library staff. Many students are receiving full or part sponsorship from their employers, some of whom are clearly using the degree scheme for planned staff development.

These facts together with the buoyancy in application testify to the initial success, and positive reception of the scheme. Individual students currently on the course have received internal promotions, added responsibilities or obtained new jobs on the strength of their performance on the degree scheme. The Library Association, the major professional body in the library world, will visit the Department in November with a view to accrediting the degree scheme for chartership purposes.

The presence of actual students on the course has meant constant critical evaluation. As a result of feedback sessions at study schools and end of module evaluation reports, major changes to the study schools have taken place, and a new pre-course module on study skills and information technology for beginners has been produced. Apart from the students who provide the best evaluation of the scheme, other effective quality control mechanisms have been put in place.

***Reference***

Nelson, John (1994),'Introducing computers to undergraduate distance learning' CTISS File, July 1994, No. 17, pp.38-40.

# TRAINING AND DEVELOPMENT OF TEACHING SUPPORT STAFF, YEAR 2


*Project Co-ordinator* — Research Fellow - W.G. Fleming, Staff Development.

*Team Members* — Mr. Derek Barnes, Head, Department of Vision Sciences,
Ms. Marlene Clayton, Head, Staff Development,
Dr. Pat Fleetwood-Walker, Associate Director, Staff Development,
Dr. Colin Fowler, Senior Tutor, Department of Vision Sciences,
Professor Nigel Reeves, Head, Department of Languages and European Studies,
Dr. Michael Townson, Senior Tutor, Department of Languages and European Studies,
Mrs. Carol Ravenscroft, Project Secretary, Staff Development.


*Project Management* — The Project is managed by a Steering Group comprising Ms. Marlene Clayton (Chair), Professor Reeves, Mr. Barnes, Dr. Fowler, Dr. Townson, Dr. Fleetwood-Walker and Mr. Fleming. A small Working Team (sub group of the Steering Group) of Mr. Fleming, Dr. Fleetwood-Walker, Dr. Fowler and Dr. Townson plans and co-ordinates Project activities, generates ideas and reports progress to the Steering Group.


*Institution* — Aston University, Aston Triangle, Birmingham B4 7ET.


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*Abstract*

This is a collaborative project between the departments of Languages and European Studies, Staff Development and Vision Sciences designed

a) to enhance the skills and teaching expertise of teaching support staff (TSS), and,

b) to improve the ways in which this increasingly important learning is managed to ensure maximum benefit to students, support staff, departments and the University.

The focus of the project is on the ways in which practitioners, in our case, practising optometrists and native speakers, are involved in contributing to learning in an academic community. TSS work at the interface between the community of scholars and other communities of practice. The investigative phases of the Project have focused on identifying the training needs and management structures required to support TSS at this interface.
This has involved

a) examining the ways in which different stakeholders (students, academic staff, TSS) perceive the TSS role;

b) observing TSS 'in action';

c) determining the barriers to and incentives for TSS development as teachers.

The output of the Project (workshops, self-development materials, management checklists, papers for publication, a model of staff development centred on collaborative inquiry) is designed to enhance the quality of TSS contributions to student-centred learning.

*Aims*

To improve the efficiency and effectiveness of teaching-support staff (TSS) in the provision of high-quality student-centred learning. To improve management policies and procedures in relation to this TSS resource in order to maximise the benefit to students, support staff, departments and the University.

*Objectives*

- to analyse the current needs of programmes, students and TSS in two academic departments - Languages and European Studies and Vision Sciences, as exemplars of Science and Arts disciplines;
- to identify the management needs of TSS in the two disciplines;
- to devise a staff development and management strategy for TSS in the two disciplines, as a pilot scheme;
- to create a free standing package to support TSS development in the two disciplines;
- to create a generic version of the materials for use across the HE system;
- to publish papers disseminating ideas and issues raised by the Project;
- to establish TSS development programmes in collaborating departments.

*Methodology*

Year 2 of the project has involved a number of overlapping phases :

*Phase 1 :*
Refine materials through consultation with the two collaborating internal departments (Languages and European Studies and Vision Sciences) and other internal departments employing TSS.

*Phase 2 :*
Preparation of a generic version of the materials for use across the HE system.

*Phase 3 :*
Devising and running workshops for TSS and Departmental staff centred on issues arising fro the Project.

*Phase 4 :*
Preparation of papers for publication.

*Phase 5 :*
Setting up TSS development programmes in collaborating departments.

*Project Outcomes*

The following have been completed at the end of Year 2.

1. Set of materials :

   a) for internal collaborating departments (Vision Sciences and Languages and European Studies) covering aspects of managing TSS;

   b) for TSS in internal collaborating departments (Vision Sciences and Languages and European Studies) to assist in their self-development as teachers;

   c) for the HE sector, a generic set of materials for departments covering aspects of managing TSS;

   d) for the HE sector, a generic set of materials for TSS to assist them in their self-development as teachers.

2. Workshops with TSS and academic staff in Languages and European Studies and Vision Sciences.

3. Publication of 2 papers and 3 in press.

*Project Evaluation*

a) Revisions to the materials have been based on comments from staff in the collaborating departments.

b) Creation of the generic version of the materials has been assisted by consultation with colleagues in the HE sector.

c) Reaction to the published papers is awaited.

d) The Steering Group has undertaken ongoing review of the Project management, policies, strategies and financial matters.

e) The Working Group has continued to generate ideas for ongoing project development.

Over the year the emphasis of the Project has embraced broader educational and curriculum development issues. This has arisen as the wider applicability of the ideas and materials to departments has been increasingly recognised, particularly in the context of current quality audit and assessment initiatives.

*References*


1) Fleetwood-Walker P, Fleming W, Fowler C, and Townson M., Cops and Robbers: *Enhancing the Quality of Theft*, Proceedings of the fifth international conference on assessing quality in higher education. Bonn, 1993; Proceedings compiled by Trudy Banta and Caitlin Anderson, Office of the Vice-Chancellor, Planning and Institutional Improvement, Indiana University-Purdue University, Indianapolis, USA.

2) Fowler C, Fleetwood-Walker P, Fleming W and Townson M (1994) *Teaching support staff in the clinical training of optometrists*. British Journal of Optometry & Dispensing, 2:4, 161-163.

3) Fleming W, Fleetwood-Walker P, Fowler C and Townson M, (in press) *Learning versions of disciplinary practices from practitioners in academic settings.*

# PROJECT GRACE : TOWARDS BILINGUAL MODULAR MULTI-LEVEL PROVISION IN WALES


*Project Link Officers* — Eluned Nickson (Aberystwyth),
Sandra Sherwood (Bangor),
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*Abstract*

In response to increasing demand, Departments of Extra-Mural Studies/Adult Continuing Education of the University of Wales have been seeking ways to extend the range of accredited courses that can be offered to their students and particularly to students living in rural and Valley communities where provision is scant and numbers for classes are often low. In these areas, for classes to be viable in terms of numbers, they have to provide for students who are seeking accreditation at different levels, and who may have Welsh or English as their first language. To address this problem, Project Grace was put forward as a pilot project to support the development of modular, bilingual, multilevel accredited provision. Welsh Womens History was chosen as the subject area for the module, because of the materials in this field.


*Aims & Objectives*

*Aim :*

To promote collaborative, modular, multi-level provision in Wales through developing and piloting a bilingual module of Welsh Women's History.

*Objectives :*

The objectives of the project are :

- to produce packs of materials in Welsh and English on Welsh Women's history for use on courses at Access, Undergraduate and Postgraduate level;
- to pilot the materials on 'single-level' Access to HE, undergraduate and postgraduate courses and also on multi-level courses mounted by the Extra-Mural/Continuing Education Departments;

- to adjust the packs in the light of the comments made by tutors and students piloting the materials;
- to disseminate the packs within Wales;
- to disseminate the outcomes of the project.

*Progress of Project*

*Phase 1, 1992-3 :*

In the first phase of the project (1992-93) packs of materials were produced which cover the history of women in Wales from 1750 to the present day. There are ten units in the module entitled:- An Introduction to Women's History in Wales and its Sources; Women at Work in Nineteenth Century Wales; Domestic Service; Women in Agriculture; Women in Public Life in Nineteenth Century Wales; Women and Politics; Women and Welfare; The First World War. The Inter-War Years; The Second World War and After.

Each unit consists of a core text together with a range of primary source materials. The units are designed so as to allow for mixed group delivery to Access, Undergraduate and Postgraduate students in one class. The multi-level facet comes into play with the learning packs which accompany the core materials. These packs contain the relevant material for each level being studied - assignments, assessment plans and reading lists.

The materials were written by a team of three project workers, Pam Michael, Annie Williams and Neil Evans, all of whom have published on various aspects of Welsh Women's history. The team undertook wide research in an area where little published work exists.
The materials have been read and commented on by the project consultant Deirdre Beddoe, Professor Emeritus in Women's History at the University of Glamorgan.

*Phase 2, (1993-4) :*

The materials have been piloted in 6 courses in the second phase of the project (1993-4).

- 3 Access courses in the Valleys
- Extra-Mural class Aberystwyth
- Extra-Mural class Swansea
- B.A. joint History and English, Wrexham

This year (1994-5) Project Grace materials are being used on the following courses:

| | | |
|---|---|---|
| S.W. Wales | Extra-Mural Class | U.W. Swansea |
| | HE level 1 accredited course | U.W. Swansea |
| | 2 Access courses (Foundation Studies Programme) | U.W. Swansea |
| S.E. Wales | Women's studies Undergraduate programme | University of Glamorgan |
| | History undergraduate programme | |
| Mid Wales | HE level 1 accredited - 2 courses | U.W. Aberystwyth |
| | 20 credit module on HE Certificate | Coleg Powys |
| North Wales | Module on Women's Studies | U.W. Bangor |
| | Diploma/Master's Course | |
| | Women and Work | |
| | Special subject in Final year | North East Wales |
| | B.A. Joint History & English | Institute |

Where these courses are award bearing or credit bearing they have been through the necessary validation procedures.

The packs have been greeted with enthusiasm by both tutors and students. There is a dearth of published material in this field and tutors have particularly welcomed the documentary source materials in the packs.

Students using the packs came from a wide range of backgrounds - from adults returning to study to graduates with a professional interest in the subject area. Their enthusiasm can be gauged from the following samples of their comments when asked what they had gained from courses using the packs:

> "A new respect for my mother's, grandmother's and great grandmother's generations and a renewed interest in study (particularly in aspects of history covered by the course)"
>
> "A sense of solidarity in knowing that this project will stimulateinterest in women's history"
>
> "Valuable source material for the neglected area of women's history"
>
> "I missed the first unit of the course because of work but, storms, birthday celebrations - nothing could keep me from the others!"

*Future of the packs :*

Students and tutors of the pilot courses completed evaluation forms and currently meetings are being held with the tutors so that the project workers can adjust the packs in the light of their suggestions. In particular adjustments will be made so as to present a uniformity of style and to include additional assignments suggested by the tutors. The project workers should have written up the packs in their final form by December 1994.

Negotiations are under way with the University of Wales Press regarding the publication of much of the Project Grace materials as two volumes in their 'Welsh History and its sources' series.

*Project Outcomes*

The project has produced superb materials (words of project consultant) on Welsh women's history in Welsh and English which can be used as a resource for teaching and learning at Access, Undergraduate and Postgraduate levels. We expect that an edited version of the materials will be published next year by the University of Wales Press as two volumes in the 'Welsh History and its Sources' series. This will greatly publicise the project and ensure its future use.

Before this project, there were no courses on Welsh Women's history. Now such courses, based on Project Grace materials, are running in all regions of Wales. Student learning on these courses can be accredited at Access, Undergraduate and Postgraduate levels.

The project has stimulated interest in Welsh Women's history in the wider community. For example, Radio Wales' 'Backtrack' history programme devoted an hour-long programme to Project Grace in July.

To some extent the project has been hampered by the success of the materials. Courses have attracted large numbers of students and to date the multi-level aspect of the materials forming the basis of a taught course to students at different levels has been tested only on non-accredited Extra-mural classes.

*Project Evaluation*

The materials have been evaluated by the project consultant and the staff and students on the pilot courses as described above.

However, it is impossible to evaluate the impact of the project as a whole in the short term. All that can be said at present is that there is a great deal of interest in the project and its materials will be used on Access, Undergraduate and Postgraduate courses across Wales in this coming year 1994-1995. The project link officers will continue to promote the project and the use of the packs and to monitor developments.

The ideas put forward by Project Grace have transferred to other subject areas. For instance a Women and Health module at Bangor, taught to a mixed group of students, is designed so that they may gain credit at either Diploma/Master's level or at HE CATs level 1. Extra-Mural colleagues, too, are looking at this model as they seek to develop credit-bearing courses to meet the new funding requirements.

# Introduction of Open Learning Methods into the Undergraduate Curriculum

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*Abstract*

This project was designed to help address the institutional objectives of improving the student learning experience whilst increasing student numbers within the constraints of available teaching facilities. Techniques learned in the provision of distance learning materials were applied to the production of self-instructional text for an undergraduate degree course delivered on campus.

The material was used for a first year, first term course of the BEng degree in the School of Mechanical Engineering. The course was designed for self-instruction and to accommodate variability in entry experience.

*Aims & Objectives*

- to conduct an investigation into the viability of introducing open learning methods into relevant parts of the undergraduate curriculum in engineering;
- to produce open learning materials initially for the Manufacturing Processes components of the BEng and to pilot these;
- to evaluate the student and staff response to the content and the structure of the self-instructional course and make comparisons with the conventionally-taught course.

*Progress of Project, 1993-94*

Half the 1993 first year cohort total number 130 students studied Manufacturing Processes via the self-instructional Workbook, and videos. Half the cohort studied this subject via a conventional 10-hour lecture series, as a control group. Quantitative and qualitative evaluation of the project was carried out and we also assessed the end of year exam results of both groups.

*Quantitative Evaluation :*

End of term questionnaires for all students who attended lectures :
A majority of students, >60%, responded;

- lectures do not encourage their interest in the subject;
- the course structure does not encourage them to take responsibility for their own learning;

- lectures do not motivate them to study the subject.

End of term questionnaires for all self-instructional students :
A majority of students, >60%, responded;

- they found the self-instructional style user-friendly;
- the design of the course suited them;
- the course helped them gain factual knowledge;
- the course structure helped them take responsibility for their own learning.

*Qualitative Evaluation - Lecture Students :*

General feelings about lecture course vis-à-vis flexibility course :

- the flexibility course is a lot more work, but students learn a lot more from it.

Lectures :

- General feeling that lectures are uninteresting although it's an interesting subject. Problem with lectures is either because they know all the material or because they have no knowledge at all!;
- felt lectures did not have enough structure;
- BTEC students felt patronised;
- A-level students felt practical experience was needed to relate to information given in lectures. Found the lectures very difficult.

Learning :
Most students felt they were not learning the material, either because it was presented too fast or because they didn't understand it.

Motivation :
Most students are motivated to study this course, partly because it's intrinsically interesting, partly because it is less complex than most other courses. Some said it was the lowest priority because there is no requirement to hand in course work as there is with other courses.

Responsibility to Learn :
All students felt it was their own responsibility to learn, but the Professor's responsibility to guide them and get the material across clearly. A two-way process.

*Qualitative Evaluation- Self-instructional Students :*

General feelings about lecture course vis-à-vis flexibility course :
Most students said they preferred flexible learning to lectures although they felt a great deal of self-discipline was needed and sometimes lack of motivation was a problem.

Effective way of learning :
Some students thought this was more effective than lectures because of the SAQs although

**others liked the immediacy of having questions answered in lectures.**

Comparing self-instruction to lectures :
Most students said generally they preferred lectures because they were an easier option. They felt they had more work to do ñ longer to study with the work books, but they had learned more than the students on the lecture course.

On taking responsibility for their own learning :
Most felt the workbooks helped them take responsibility for their own learning. Most said they would rather have more supervision.

Motivation :
One student suffered from lack of motivation
Most were motivated by interest in the subject and fear of failing the exam.

*Project Outcomes*

For the 1994 first year cohort, a new Workbook in Manufacturing & Materials has been written to include the material normally taught in the second term. Thus, the School are now replacing 30 hours contact time instead of 10 hours. The School are currently considering the possibility of converting similar, fact-based courses to this format.

A first year course in Information Management has been written for a new degree in Natural Sciences being offered for the first time in October 1994. The total study time is 90 hours, of which 50% is self-instructional. It is text-based with workshops and practical sessions. This material is being offered to all Schools in the University in some form. The course will be evaluated during the academic year 1994-1995.

*Project Evaluation*

Interviews with members of the teaching team for this course have revealed that although no appreciable differences have been found in exam results, the self-instructional style of delivery of this basic engineering course is preferable to a conventional lecture delivery. It is felt that the students take more responsibility for their own learning and this is a desirable outcome. On the whole the Project Team are satisfied with the outcomes of the pilot programme.

We are now considering an institution-wide initiative to promote the conversion of lecture courses to text-based self-instructional courses. This will involve a marketing programme and awareness and skills seminars for academic staff.

# Integration of Daytime and Evening, Part-Time and Full-Time Social Sciences First Degree Provision


*Project Co-ordinator* Dr. Nancy Glandon, Chair and Course Co-ordinator.

*Team Members* Ms. Jo Lewis, Admissions Co-ordinator,
Dr. Russell Murray, Examinations Co-ordinator,
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*Abstract*

In 1984 Bradford became the first university in the country outside of London to offer opportunities for evening-only part-time first degree study for mature students, through a now well-established and flexible modular course which incorporates advanced entry and Credit Accumulation and Transfer. In 1993 the course won a Partnership Trust award, the British Gas Prize for Widening Access to Higher Education.

The University's decision to modularise and reorganise undergraduate courses into semesters [beginning in 1993-1994] provided opportunities to develop a new initiative for flexible part-time day and evening study. The reorganisation into semesters required some modifications to the existing three-term modular structure of the Part-Time BA, and because full-time social science courses were also being reorganized, the project enabled us to plan the changes so that interactive flexibility for students could be built into full-time day and part-time evening courses in a sensible, efficient, and cost effective manner. We believed that such flexibility would be attractive to potential students for whom existing provision was unsuitable, and would also enable those students who, for whatever reason, need to interrupt their mode of full-time study, to continue with a social science degree course on a part-time basis, tailored to their individual needs.

Using daytime modules available throughout the Board of Social Sciences, from undergraduate Departments already participating in the evening programme, the new provision is based on the academic and administrative model of the Part-Time BA. During the first year eighteen part-time students took 13 different daytime modules, occupying 38 daytime module places; all successfully completed their studies, both day and evening. Despite some difficulties (see Project Evaluation), the programme will be extended in 1994-1995.


*Aims & Objectives*

The goal of the project was to create an integrated social science degree course structure, based on the Part-Time BA model, such that students would be able to move easily, each semester if necessary, from full-time to part-time study, from part-time daytime to part-time evening, and back. To accomplish this goal, the aims of the original project were to:

1) Co-ordinate modularization plans of full and part-time social science courses.

2) Adapt the Part-Time BA model to include daytime part-time provision.

3) Adapt existing admissions and publicity package for daytime part-time students.

The first daytime modules were open to Part-Time BA students in 1993-94. With the model and revised admissions and publicity in place, specific aims of the second year of the project were to :

1) Continue the implementation of modularization plans across undergraduate social science courses.

2) Evaluate the experiences of the first intake of students and the effectiveness of the model in its first year of use.

*Progress of Project*

Our first aim for 1993-94 was to continue the implementation of modularization plans across undergraduate social science courses. The BA is designed so that while students can complete the course at their own pace, the normal length of part-time study for the honours degree is five years : Part One, two years to accumulate 120 Level One credits; and Part Two, three years to accumulate 240 Level Two/Three credits. In 1993-94 we opened daytime modules to Part One students from five Departments' first year undergraduate courses.

During the year agreements were reached with Departments beginning their modularisation programme in the Board of Studies in the Social Sciences so that daytime provision for Part-time BA students is much expanded for the 1994-95 academic session, and now includes all Departments with undergraduate courses who regularly participate in our evening programme and are represented on the BA Standing Committee.

*Part One :*

In addition to the five Departments who began their participation in the programme in the 1993 -1994 session, the newly modular undergraduate courses from the Departments of Applied Social Studies (Social Policy), Interdisciplinary Human Studies, and Peace Studies have been added to Part One from the 1994 - 1995 session.

*Part Two :*

For 1994-95 we have expanded our programme to include Part Two modules from the Departments of Applied Social Studies (Women's Studies, Management and Technology), European Studies, Peace Studies, and Social and Economic Studies. In 1995 - 1996 the new Part Two modular programmes in Applied Social Studies (Social Policy) and Interdisciplinary Human Studies will also be added.

*Module compatibility :*

In all cases the daytime modules were assessed for compatibility and equivalence, to ensure appropriate and standard prerequisites, credit and course level ratings, consistent with the alternative paths available in the evening programme. Guidance notes for students, together with daytime timetable and module descriptions were circulated to all interested part-time students. These will continue to need extension and updating as the Part Two programme

expands for 1995-96, and as Departments add additional modules or substantially alter the content of existing ones.

*Project Outcomes & Evaluation*

*[this section is based on data for student take-up, completion, future intentions, student questionnaires, a log kept during the session, and discussions with staff and students.]*

1) Student Outcomes : Take up and completion rates, 1993-94

Our initial advertising of the new daytime provision increased the number of enquiries and applications for admissions, and approximately 10% of applicants were interested only in part-time daytime study. Questionnaires to existing students suggested that approximately one-third would like to take some [or all] of their modules in the daytime, depending on timetable details, as would a third of the applicants for the 1993 entry. These expectations were not realized in actual numbers: 21% of eligible students took at least one daytime module as part of their part-time study; just over 5% studied only in the daytime.

First Semester - Daytime Registration and Completion : *11 Students (3 daytime only), in seven different modules, occupying 15 daytime module places.*

In the first semester twelve students registered for seven different daytime modules (a total of 17 daytime places) in the first semester. Of those twelve, ten completed their daytime modules, one transferred from a daytime to its evening equivalent module, and one withdrew from one single module but completed the other daytime module. Three of them studied only in the daytime, the rest pursued a combination of day and evening modules. All twelve of these students successfully completed their first semester's work (day and evening); eleven returned for the second semester.

Second Semester - Daytime Registration and Completion : *16 Students (7 daytime only), in six different modules, occupying 23 daytime module places.*

For the first time, the part-time BA had a midyear intake, admitting thirteen additional students in the second semester. Of these, four took daytime modules, and two studied only in the daytime. Additionally, nine of the students who had studied in the daytime in the first semester and three other returning students pursued some daytime study in the second semester; five of them took all of their second semester modules in the daytime.

All of the eighteen students who participated in this new programme of daytime part-time study successfully completed their day and evening studies; one left the course for financial reasons, and four have transferred to other courses, three of them to full-time University courses (two at Bradford, one to Reading), some receiving advanced entry credit for their studies on the Part-Time BA. Of the thirteen returning students still registered with the BA, ten of them plan some daytime study in 1994-95, and the rest intend to study only in the evenings in 1994-95.

For Part One students as a whole, 40 of the original October 1993 new intake of 48 completed their studies, as did 22 of the 24 returning second year students and all 13 of the February 1994 intake. The ten students who left during the session did so for financial, personal, family and/or health reasons.

2) Expected Student Take-up, 1994-95 :

A total of twenty part-time students (five of them from the new intake to the course) are intending to study in the daytime in 1994-95, in 29 different modules from six of the participating departments. Four of them are intending to study only in the daytime in both semesters.

First Semester - Daytime Registration : *17 Students, in 14 different modules, occupying 28 daytime module places.*

*Part One :*

In the first semester thirteen students are registered for eleven different daytime modules (a total of 24 daytime places). Of these, five are planning to study only in the daytime, the rest pursuing a combination of day and evening modules.

*Part Two :*

Four students are registered for three different daytime modules, occupying 4 daytime places. One student is daytime only, taking one module.

Second Semester - Daytime Registration : *15 Students, in 15 different modules, occupying 22 daytime module places.*

*Part One :*

Nine of the students who intend to study in the daytime in the first semester and two other students have registered for 10 different daytime modules, occupying 16 module places in the second semester; five of these intend to take all of their second semester modules in the daytime.

*Part Two :*

Four students are registered for five different daytime modules, occupying 6 daytime module places. One student is daytime only.

Second semester daytime part-time numbers may increase with our February intake.

3) Evaluation of the experiences of the first intake of students and the effectiveness of the model in its first year of use.

Our original goal - to create an integrated social science degree course structure that students could use to move easily, each semester if necessary, from part-time daytime to part-time evening, and back - has certainly been achieved. The students clearly understand the arrangements, and some of them are altering their pattern of study each semester (day, evening or combined) on the basis of the particular modules available. The range of students across so many different modules is also a sign of the flexibility of the model as students create their own individualized programme of study. (This range of students across modules also means that no full-time Department is likely to be 'overwhelmed' by a large group of our students in a particular module.) The majority of the students completing questionnaires mentioned without prompting the wider choice of daytime modules available; some went on to complain about the delay in receiving the daytime timetable details, noting the difficulties that this caused in their planning of child care or work arrangements. They contrasted this uncertainty of future daytime timetables with the advanced information they have received about the evening

programme.

Our course guides to 'planning your degree package' have received very positive ratings (on the returned questionnaires) for clarity, completeness and suitability of the information provided by the BA. This evidence is backed up by the quality of discussions when students consult their tutor-counsellors; the students have read and understood the material, and are able to plan their programme using the prerequisites, module equivalents, and credit ratings appropriately.

Other students, originally interested in daytime study, have been unable to take up the opportunity. We sent a questionnaire to the 13 students who had requested information about the daytime programme but did not take any daytime modules, and received six completed returns. When asked to rate the most important reasons for choosing day or evening study, all ranked their employer and timetable considerations first and second.

While the two returns from students who studied only in the daytime throughout the year indicated they had done so primarily because of their family responsibilities, the responses of students choosing a combination of day and evening modules were more varied, but tended to rank timetable first, family second, and employer or module content third. Virtually all the completed questionnaires from all types of students mentioned (without prompting) the difficulties of attending on different days of the week for a lecture and related seminar. For students with a possible one-day a week work release this meant that they could not take up a module they had wished to study; for others it meant two journeys each week to the University for each module, with its related expenses.

The students who studied in the daytime rated the information received from full-time Departments about assessment requirements, exams or essay submission, and especially information about changes to the ongoing timetable as less than satisfactory. This difficulty with communicating changes in the timetable, room alterations, and cancellations because of illness was noted repeatedly in the office log. Students needing information about their classes would contact our office, because they didn't know who to contact; all too often we had no information about the changes either. Nonetheless, all of the student questionnaires rated the availability of Part-Time BA office staff very highly, as do our part-time students generally. As one wrote, 'a bewildering start...grateful for Course Office as a source of help'. We are doing what we can to improve the communication links with departments.

Some confusion arose with the assessment practices of daytime departments. Examination days and times differed from lecture/seminar days and times, and caused some organisational concerns for some students, but all our students did attend for all their examinations. Each department has its own policy for coursework submission and retention, and within each system, individual tutors may follow their own practice.

Certain difficulties were due to the fact that the modularisation structure was itself new to the University and to all participating departments. Not all tutors seemed to understand the new arrangements, and departments and central administrative units are still evolving their own administrative practices. Particular problems arose at the end of the first semester where part-time students were not included on lists of students expected to take particular daytime examinations; this was rectified and students took their examinations with the other students in the modules. Changes planned centrally to the examination system should eliminate this and other examination related problems. The introduction of a new system for parking permits (which only applies in the daytime) also caused difficulties for some students.

Despite these problems, our students feel positive about their experiences of daytime study, and, timetables permitting, intend to continue it. Additionally, it may well be the case that the three students who have left the course for full-time study feel more secure in their decisions, because of their experiences of studying alongside full-time students.

In last year's report we wrote that we expected that *'many of the problems we are likely to encounter will stem from the fact that University Departments are used to dealing with full-time "typical" undergraduate students, who live on or near campus, and can easily change their daily or weekly schedule. We further expect, however, that these difficulties will ease with time, good will, and continued communication.'* That was indeed our experience; as part-time numbers grow, as more full-time students take up part-time employment during term time and as the two semester modularised programme becomes established within the University, these difficulties should lessen. One very worrying trend, however, is the increasing number of part-time students (day and evening) who are unable either to take up their places or stay on the course for financial reasons.

Our students were aware that they were participating in a new venture, and while critical of some aspects of it, have appreciated the opportunities provided to 'be part of the university in full flow', while at the same time missing the other part-time BA students. For most of them, combining day and evening study throughout their course appears to be their solution.

# Producing Materials to Support Self Paced Learning of Basic Discrete Mathematics

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*Abstract*

A complete course equivalent to 30 hours of conventional teaching has been produced, covering discrete maths for software engineering and suitable for use with non traditional or poorly qualified students. The basic teaching method is self paced learning in which students do not progress until they have shown that they are ready to do so. The materials which consist of text, video, software based group projects and diagnostic tests may also be used for open and distance learning; they are designed to be used without lectures but with tutorial backup (possibly by video conferencing).

*Aims & Objectives*

Self paced learning has been used at Brunel for 15 years for teaching mathematics to non specialists, particularly computer science students, and has been found to work well with non traditional and poorly qualified students, especially when use is made of video and computer aided learning. The aim of the project is to develop the Brunel course into a form that can be used at other institutions and for distance learning.

*Outline of the years work :*

The first year of the project produced a pilot version of a one semester course in 5 modules (each equivalent to 6 hours of a conventional course, but incorporating additional motivational material).

The titles of the modules are :

Propositional Logic,
Predicate Logic,
Numbers and Proof,
Sets and Functions I,
Sets and Functions II.

The first 4 modules cover the basic course, the fifth should be done if time allows. Each consists of 4 learning units covering the basic material, with a fifth devoted to applications or lab exercises, and a sixth to more advanced topics. Each Learning Unit is equivalent to a lecture but designed for self study and there are video tapes for each learning unit containing both the solutions to the exercises and summarising the content of the module.

The division of material into modules and learning units was chosen to harmonise with the format used by the MathWise consortium, and we have tried to make our material complementary to theirs.

During the autumn semester this pilot version was completed and tested on a class of 200 first year students at Brunel. As a result of Dr. Rae's trip to the United States it was decided to include software supported group work as an assessed part of the course (20%) and enhanced electronic communication including e-mail and an electronic bulletin Board. In addition a quantity of software was installed on the campus network including a hypertext document developed by a student at Liverpool John Moore's University.

Overall student response was very encouraging and the new printed material which has been produced to a high standard was very well received. The trial version of the videos suffered some technical problems which have since been overcome. The group projects were also a very welcome innovation as they helped to pull the class together.

E-mail proved to be extremely useful but the bulletin board failed to make an impact (this problem has also been overcome subsequently).

Exam results were good, with an overall average of 54% gained by a large group of very mixed ability, more than half of which did not have A levels in Mathematics. The failure rate was 12%, but most of these were able to redeem themselves by subsequent work, helped by the flexible nature of the teaching method. There was no 'resit 'exam; the failures were mostly because students had not completed the coursework and this they were able to do in the second semester with minimal tutorial support.

In fact the use of our material for remedial purposes seems to one of the most promising outcomes.

During the second semester we worked on further developments (producing a second level course following on from the 5 basic modules), on revising the material in the light of our experience, and on trying to disseminate our material to other institutions. Anglia Polytechnic , Reading and the University of Central Lancashire all used our material with groups of students who had failed a conventional course. As a result of their reactions we decided to make the material easier by splitting off the more difficult parts of each module into an optional section suitable for those who were getting on well.

Dr. Rae and Mr. Samuels visited the United States to follow up previous contacts. Mr. Samuels attended a workshop at Purdue, held by the leading US educator Ed Dubinsky, while Dr. Rae visited PWS publishers who have agreed in principle to publish the material, Professor Epp, the author of the textbook which our material is structured round, and a multi media conference in Vancouver where there were interesting presentations by various Delta funded software projects who we are hoping to work with in the future.

*Project Outcomes*

Five Modules consisting of 25 learning units and 42 video tapes, with accompanying group projects (in 6 versions), study guide and diagnostic tests. The revised version of this material is at present being tried out with a class of 220 students and is available for trial elsewhere. The flexible nature of our material has meant that it has already been used for remedial purposes at 3 other Universities.

In addition the commercial theorem prover, ProofPower recently released by ICL, was adapted for educational use.

*Project Evaluation*

The material has been tested on Brunel students, whose reactions have been probed with a questionnaire. Three other institutions have also used it and their students asked to comment. Account has been taken of all these reactions in the final version.

*Dissemination :*

We have travelled extensively in the UK speaking about our project at conferences and seminars on over 20 occasions during the year. We are distributing our text by anonymous ftp worldwide, and videos are available on request. We made a particular effort early in the year to find other sites to test our material on; having done so we are now waiting for the results of our experience with the revised material during the current semester before issuing the final version.

*Current Developments :*

We see it as a high priority to develop an on line testing facility to accompany the modules and hope to have this ready in time for the release of the final version of the text and video.

We are working on a distance learning version of our course to be delivered by video conferencing. Brunel has acquired new software which we hope to use to digitise our material, and we have been in communication with personnel at Cern who have software to translate our text into HTML (Hypertext mark up language) which will make it possible to deliver it over the internet, and we are also talking to a virtual on line university in Texas who are interested in exploring this possibility.

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# THE EUREKA PROJECT

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| *Director* | Professor Anne Jones, Head of the Department of Continuing Education. |
| *Project Co-ordinator* | Dr. Alexis Lansbury (Physics Department). |
| *Team Members* | Mrs. Brenda Foster (Administrator),<br>Mr. Fazal Hashmi (Maths Tutor),<br>Dr. John Parrott (Physics Tutor),<br>Mr. Malcolm Mander (Chemistry Tutor),<br>Mrs. Anne Mulholland (APL & Accreditation Manager). |
| *Institution* | Brunel University, Uxbridge, Middlesex, UB8 3PH. |

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*Abstract*

The Eureka Project at Brunel is now well established within the University and the local community. A full-time APL/Accreditation Adviser has joined the Department of Continuing Education, which provides a free advice service to the local community and employers. The Department is developing, in partnership with an employer, software to help speed the APL process.

48 Eureka students enrolled. 5 gained 'A' level passes, 2 at 'A' grade. 7 Eureka students have now taken up places at University to study science related subjects.


*Aims*

To increase recruitment to Science and Technology degrees from mature students and students with non-traditional entry qualifications by offering extra learning support and flexible part-time provision.

*Objectives*

1) To provide support and guidance, including APL, for those mature adults seeking flexible learning opportunities.

2) To open up the University for the first time in the evenings for flexible evening classes held between 6 - 9, three evenings a week, in science subjects with the aim of encouraging recruitment for degrees in these subjects.

*Progress of Project, 1993-4*

*Eureka Classes :*

1) Classes ran in Maths, Physics and Chemistry throughout the year for three terms of ten weeks each. The Maths classes were particularly well attended and so enthusiastic that an extra workshop was arranged for Saturday mornings. Eureka has now established itself and there is considerable peer group referral.

2) As in the previous years, a number of students dropped out. Numbers were as follows for the year :-

| | | |
|---|---|---|
| *Chemistry :* | 9 registered | 4 lasted the year |
| *Physics :* | 14 registered | 10 lasted the year |
| *Maths :* | 25 registered | 21 lasted the year |

3) An open access policy was again operated with flexible start dates. Groups were very mixed in ability; some students were in their second year of Eureka, others beginners. Some students needed one year, others two years and some three years, to improve their qualifications.

4) NEC open learning materials were used again to encourage independent learning and varied speeds of working. Independent assignments were also set as well as regular group projects.

5) Student Achievements :

1992-3 Students

5.1 One student from 1992-3 Eureka entered Brunel to read Physics in October 1993 and is doing well. A second Eureka student from this cohort will start a Physics degree at Brunel in October 1994.

'A' Level Results

5.2 Eight students were entered for Maths 'A' level and three for Physics.

The remainder of the students need further study before they are ready for formal assessment: they are planning to return.

Five passed 'A' level Maths (two at grade 'A') and three passed Physics.

5.3 Six students begin their university degree courses this October at the following institutions:

- Imperial College (engineering)
- University College (space science)
- Manchester University (medicine)
- Middlesex University (maths)
- Brunel University (physics)

6) Other Project Outcomes :

6.1 Women Returners

As a result of the special link with Hillcroft College, special arrangements are being made at the West London Institute, a college of Brunel University.

6.2 School Students

Special booster classes have been put on for local schools. Some school students have joined the Eureka classes to boost their 'A' levels.

6.3 APL

The part-time consultant has been replaced by a full-time member of staff, who works within the Continuing Education Department. We now offer two day workshops as needed for groups needing advice - e.g. army, refugees etc.; for these, we are developing, in partnership with a large employer, a piece of software to speed the process.

6.4 Learning Support Centre

The Department now receives some half a dozen enquiries a day from adults wishing to return to learning. Advice is given over the telephone. Appointments for interview and APL are made if appropriate.

6.5 Computer Science

The eight students taking the flexible masters in software engineering passed their first module and will continue in 1994-5.

7) *Project Evaluation*

7.1 Returners to learning find it hard to study independently and three hours tuition a week is not really enough.

7.2 Those who are innately intelligent but who missed out originally do make very good progress.

7.3 Those who are well motivated but either have less foundation knowledge or more limited ability, find academic demands hard.

7.4 Peer group interaction is important for nurturing morale and motivation; pure distance learning would not work for this group.

7.5 Most students do not put in enough private study - for some, this is because they have work or family commitments. For others, it is because they are not sufficiently self-motivated.

7.6 It is gratifying however, to see that such a good number of Eureka students have progressed to Higher Education when they might otherwise have been lost to the system.

# FLEXIBLE DEGREE SCHEME LEADING TO A B.SC. IN MANAGEMENT AND SYSTEMS


*Project Co-ordinator* Dr. Fred Charlwood - Head of Department of Systems Science.

*Team Members* Ms. Julia Carter - Lecturer, Department of Continuing Education,
Dr. Patricia Hind - Lecturer, School of Social Sciences,
Mr. Adam Lindsay - Scheme Development, Department of Continuing Education,
Mrs. Frances Owen - Deputy Academic Registrar
Dr. Stella Parker - Head of Department of Continuing Education,
Mr. Francis Stickland - Course Tutor, Department of Systems Science,
Dr. Ron Summers - Course Director, B.Sc. Management and System

*Institution* City University, Department of Continuing Education, Northampton Square, London, EC1V OHB.


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*Abstract*

The Flexible Degree Scheme was a project designed to allow professionals with suitable qualifications and experience to enter the B.Sc. in Management and Systems at an appropriate level. During 1993 a pilot programme was run with six such students. The focus of the pilot was on a transitional year which provided students with extra support making this higher level entry possible. Five of the students completed the programme and graduated in July 1994. The materials prepared for the pilot programme, modified in the light of experience gained, are now being developed into study packs which can be used by future students entering the scheme.


*Aims & Objectives*

The principal aim of the programme funded by the Flexibility in Course Provision initiative was to provide an accelerated route to a first degree for suitably qualified mature and experienced professionals. This aim is achieved through the following process :

- assessment of the level of skills, knowledge and experience of individuals presenting themselves for entry;
- providing a study programme for accepted students to bring their level of knowledge to point acceptable for entry to the degree course at an appropriate level;
- transferring the students to the degree course and integrating them with the main body of students.

Whilst striving to achieve the principal aim other objectives were :

- to develop a scheme which would be adaptable for use in other Departments of the University and possibly by other universities;
- to have in place a scheme which is viable for continuing operation after the period of initial funding;

- to gain an appreciation, through the experience of the pilot scheme, of the problems and difficulties faced by mature, experienced peoplereturning to study.

*Progress of Project, 1993-1994*

The last year saw five of the six students recruited into the pilot scheme transfer to the third year of the degree course and complete it. Two students gained lower second class honours degrees and three gained third class degrees. It was disappointing that none achieved an upper second, perhaps a reflection of the over intensive programme that the students went through. The sixth did not reach the required standard at the end of the transitional year and was offered a place on the second year of the course which was not taken up.

The other major effort during the last year has been in the preparation of the transitional year materials into study packs. The objective here is to enable accelerated degree students to undertake a self study programme supported by seminars and tutorials . Study packs are being prepared by Calibre Training, a company with extensive experience in preparing materials of this type.

*Project Outcome*

An accelerated scheme leading to a degree for experienced professional applicants has been designed and implemented.

The effectiveness of the scheme has been demonstrated by the successful completion of the programme by five of the six students recruited onto the pilot programme.

*Project Evaluation*

The need for an accelerated scheme leading to a degree has been confirmed. There are still many potential students who would benefit from such a programme.

A significant problem in continuing the scheme will be devising a formula which makes it viable from a financial and resource point of view. The second year funding will enable self-study packs to be produced but students on the accelerated scheme will still need tutorial support, and effort will need to be put into assessment. With the ending of the Flexibility in Course Provision funding the only benefit will be the normal support for the students during the final year of the course.

# HIGHER EDUCATION EFFECTIVE LEARNING PROJECT


*Director* Dr. Keith Topping.

*Consultants* Mary Kennedy,
Janette McCrae.

*Research Officer* Shirley Hill.

*Institution* Centre for Paired Learning, Department of Psychology,
University of Dundee.


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*Abstract*

The project was conceived as a 3-year development and research initiative with strong implications for wide dissemination.

So far, despite staffing difficulties, a great deal of successful development work has been completed (including many pilot projects) and evaluation and dissemination has commenced.

Operational plans for next 18 months of the project include supporting major developments on a larger scale and outwith the host university. Quality evaluation research is being built into these ventures to yield tangible outcome indicators. A second and more intensive wave of dissemination will then follow.


*Aims & Objectives*

The project's mission is to develop, evaluate and disseminate innovative teaching strategies within Higher and Further Education, particularly peer tutoring, mentoring and other forms of peer assisted learning.

The aim is to yield more effective learning for existing students and the release of staff time to enable the bringing on-line of increased numbers of students, who in turn would also learn more effectively.

The Project has a special interest in same-age, reciprocal, dyadic peer tutoring and the development of these methods on a large scale. Evaluation is to particularly consider issues of organisational durability and cost-effectiveness.

*Developments from Original Plan :*

While the project has been involved in a number of different forms of peer assisted learning as envisaged in the original proposal, as it moved into its second year a decision was taken to specialise to a degree in the development and evaluation of a method entirely innovative in HE namely reciprocal dyadic same-year peer tutoring, and evaluate this on a large scale in different curricular areas and departments. This is now in hand in the Economics and Mathematics departments at the University of Dundee.

Simultaneously, the project is working with the University of Central Lancashire on a very large cross-year peer tutoring project across a whole faculty of more than 2000 students.

These large scale projects will have operated for a full term by the end of the project's second full year of operation. The development and evaluation work involved will then be spread to other institutions in the third year of the project.

Dissemination will be facilitated by the establishment of the project director as associate editor of the new journal "Mentoring and Tutoring". The project director is also to be editor of the proposed new "International Journal of Tutoring and Mentoring". Research collaboration has been established with the Management Psychology Laboratory of the Academy of Pedagogical Sciences in Kiev and with the University of Cincinnati, Ohio.

*Progress & Outcomes*

*Background Research :*

International Literature Search on Peer Tutoring in HE/FE
International Literature Search on Student Tutoring
Linkage with National Evaluation of Student Tutoring

*Staff Development Activity :*

Production of INSET Materials Pack on PT in HE for Staff Development
Production of INSET Pack on Student Tutoring for Staff Development
Staff Development Course: Faculty-wide for HoDs in UoD
Staff Development Course: Open to all UoD
Staff Development presentations in individual departments, UoD
Identification of other potential interest in Physics, Biology, Surgical Skills, Dentistry, Physiology, English Departments in UoD
INSET for University of Central Lancashire (UCL) joint project staff
Evaluation of Staff Development activity undertaken

*Consultation :*

Consultations with interested individuals on staff at UoD (total approx. 85)
Individual and Group consultations with students as consumers
Consultation on validation of UCL Tutoring
Accreditation Scheme

*Training :*

Training of Tutors in Continuing Education, UoD
Training of Tutors in Summer Access School, UoD

*Pilot Development Projects :*

Psychology Project 1
Psychology Project 1
Law Project 1
Law Project 2
Law Project 3
Social Work Project 1

*Dissemination - Publications :*

Contribution to U. of Ulster Staff Training Manual
2 Articles in Peer Tutoring Newsletter
Article on Peer Tutoring in "Mentoring"

*Dissemination - Conferences, etc. :*

Paper to HEC Conference, London
Paper to HEC Conference, Plymouth
Paper to PTC Consortium Meeting, Manchester Met U,
Paper to BP/CSV Student Tutoring Evaluation Conference, London
Lectures to Universities of Strathclyde, Aberdeen, Glamorgan
Paper at International Conference, Cambridge
Symposium on PT in HE at International Conference, Glasgow
Symposium on Student Tutoring at International Conference, Glasgow
Lecture to Association of Heads of Psychology Departments, London

*Network Contacts :*

Other network contacts include Wirral Metropolitan College, University of Huddersfield, Loughborough University, The College of Air Traffic Control, Kingston University, Oxford Brookes, Glasgow Caledonian, Lancaster.

*Distance Learning :*

Summer Access School Training Handbook. Organising Peer Tutoring in Further and Higher Education: a distance learning pack (with audiotape). Peer Tutoring in Further and Higher Education: a video training pack for staff development & tutor training.

The forward operational plans are :

*Staff Development Activity :*

Continuing consultative support for University of Central Lancashire (UCL) joint project staff
Production of further INSET Packs based on work outlined below
Further updated Staff Development activities in UoD

*Training :*

Training of Tutors in Summer Access School, UoD
Training of Tutors in Major UoD Development Projects
Training of Tutors in UCL joint project

*Major Development Projects :*

(These will involve large numbers of students)
Economics & Management Project 1
Mathematics Project 1
Faculty-Wide Tutoring Collaboration with UCL

*Evaluation Research :*

On all major development projects above

*Dissemination - Publications :*

PT in HE Literature Review
Student Tutoring Literature review (in press)
Organisational Parameters of Peer Tutoring in HE
Law Project 1 article (2) (in press)
Law Project 2 article (2) (in press)
Law Project 3 article
Social Work Project 1 article
Social Work Mentoring article
Economics & Management Project 1 article
Mathematics Project 1 article
Faculty-Wide Tutoring Collaboration with UCL
article(s) +
and sundry others as upcoming

*Dissemination - Conferences :*

2 Papers - International Tutoring & Mentoring Conference, London
Conference on PT in HE @ UCL, possibly with HEC
Scottish Educational Research Association Conference
BT Evaluation Forum Conference, London
Sundry others as upcoming

*Distance Learning :*

Self-Help Peer Assisted Learning Guide for Students
Generic Peer Tutoring Training Manual

# Development of a Rural Access Programme and the Expansion of Modular Degree Provision Across the Region

| | |
|---|---|
| *Project Director* | Jennifer Owen : November 1992-June 1993,<br>Naomi Horrocks : July 1993-October 1994. |
| *Project Development Officer* | Naomi Horrocks : November 1992-June 1993,<br>Hilary Ferry : September 1993-May 1994. |
| *Project Co-ordinator* | (2+2 degree in Social Work)<br>Steve Rashid : November 1992-September 1993,<br>Ann McDonald : October 1993-October 1994. |
| *Project Researcher* | Sue Bailey : June 1994-October 1994. |
| *Project Clerical Assistant* | Lesley Barrett : August 1994-October 1994. |
| *Institution* | University of East Anglia, Norwich, NR4 7TJ. |

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*Aims & Objectives*

To increase the availability of Access to HE programmes and to promote opportunities for flexible full and part-time study across Norfolk and Suffolk. This aim has been facilitated through a consortium involving UEA and regional FE and HE colleges. The foci for 1993/94 have been the development and establishment of a rural access programme and the 2+2 BA(Hons) in Social Work. The project has also worked with local providers in the establishment of an Open College Network and the identification of issues for the region in the debate surrounding post-16 credit frameworks.

*Methodology*

Collaboration and partnership have continued to be the key elements in ensuring the success of the project in its second year. As well as continuing to work with institutions and organisations involved in the first year of the project, new links were forged with others to facilitate developments in the second year. These included National Open College Network, the SEEC/TEED Project Director, representatives of HE, FE and AE involved in the credit-framework debate and new partners in the sixth form sector.

The composition of the Steering Group changed slightly in the second year to reflect more closely the partnerships established in the first year of the project. It continued to support the project team in achieving the desired outcomes for the second year and played a vital role in monitoring and evaluating the progress of the project.

*Progress of Project*

*2+2 BA (Hons) in Social Work :*

At the end of the first year of the project modules for the first two years of the course were almost completed by the team comprising Norfolk College staff and Ann McDonald from UEA and the development of years three and four were under way.

There remained a number of key issues to be resolved during 1993/94 if the course was to begin in September 1994. The admissions procedure for students required careful planning as it was anticipated that demand would exceed supply. Approval had to be sought for the course through the UEA and the Central Council for Education and Training in Social Work. The regional representative of CCETSW confirmed that they would be willing to regard the BA course as a 'second route' into the existing Diploma in Social Work programme at UEA. One unresolved issue, common to all Social Work courses, is the adequacy of practical placements for the BA students.

Although the course was not listed in the 1994 UCAS handbook there were 65 applicants for the course, 40+ of whom came from the East Anglian region. Difficult decisions in selecting students were made more difficult by cuts in funding in April 1994 when the number of places were reduced from 18 to 15. Twenty four offers were made and the 9 who rejected the offer came from outside the region. Of the 15 candidates, 9 are from Access courses. Thus the regional link and the opening up of opportunities for adults is strongly reinforced in this element of the project.

*Rural Access Programme :*

The two courses in Sheringham and Saxmundham began in September 1993. A third course in Hadleigh, Suffolk began in January 1994 as a foundation course for the Suffolk College Modular Degree Programme. This course was largely funded by Suffolk TEC. Work began on finding a suitable location to replace Methwold for 1994/95.

Although the courses were run day-to-day by the course teams the Project Director continued to co-ordinate the programme and to monitor the progress of the courses.

The Project Director worked with Suffolk College towards validation of the Hadleigh course by the East Anglian Access Consortium. Approval was given in June 1994.

Watton in Norfolk was selected as the fourth location for an Access course to replace Methwold. Watton is also in the west of the county, thus maintaining a 'spread' of provision and already has a large, thriving adult education centre with a number of GCSE and A Level courses. Despite a slow start to recruitment the course has attracted enough students to begin in September 1994.

A bid was submitted to the European Social Fund, Objective 3, to facilitate student costs and the continuation of the project. Unfortunately, the decision-making process has been severely delayed for this fund and the funds themselves will be smaller than anticipated. It is unlikely, therefore, that the bid will be considered.

Additional work was undertaken in the form of a research project to track students from their Access course this year, through the HE admissions procedures and to their HE destination. The students entering HE locally in 1994 will continue to be tracked throughout their degree course. The purpose of this is to identify good practice and gaps in admissions procedures and in the support services currently provided by HE institutions to adult students in the region and for the results of the research to inform policy in the future.

*HE in the region and the development of post-16 credit frameworks :*

A number of suggestions and recommendations were made in the document compiled at the end of the first year of the project. One of the major recommendations was the setting up of a regional CAT forum which would facilitate the establishment of a regional CAT scheme and

develop mechanisms for the transfer of credit across the region.

Although this recommendation was not taken up by the Regional Federation of FE/HE institutions in Norfolk and Suffolk, the Project Director has continued to examine the national and regional developments in CAT and accreditation frameworks, including the Robertson report 'Choosing to Change ' and the FEU 'Basis for Credit' documents. The Project Director has been active in the development and establishment of an Open College Network for East Anglia and also chaired a working group of representatives from Adult, Further and Higher Education who have been looking at some of the issues associated with the developments of credit frameworks and their implications for the Eastern region. This will culminate in a conference in October 1994. As well as the dissemination of good practice in the East Anglian region, it is hoped that the conference will serve as the launch of a working group to examine issues such as variable definitions of credit across HE, differing FE and HE credit tariffs, the ensuring of quality of credit rated 'off campus' learning and the guidance needs of students.

*Project Outcomes*

The project team has continued to meet the objectives set for this initiative in its second year.

*2+2 BA (Hons) in Social Work :*

The first 15 students will start at Norfolk College in September 1994. A Memorandum of Agreement has been prepared between UEA and Norfolk College for the formal franchising of the first two years of the course. Liaison and monitoring will continue through the School of Social Work at UEA and discussions are currently taking place concerning the marketing of the course for 1995/96.

*HE in the region and the development of post-16 credit frameworks :*

New developments and proposed expansion in modular CATS-based HE were somewhat overshadowed by the Government announcement in November 1993 of the consolidation of student numbers in HE. The emphasis of the project in its second year has been on the developments in the debate surrounding credit frameworks both nationally and regionally and the implications for providers in the region. The major outcome will be the conference planned for October which it is hoped will provide the impetus for further work to take place on the development of a regional policy.

*Rural Access 1993/94 :*

The project team has exceeded the original target of setting up three Access to HE courses. There are now four fully validated Access to HE courses in rural locations in Norfolk and Suffolk.

Of the 39 students who enrolled in 1993, 27 successfully completed their Access course. Only two students left their course within the first two weeks. The other 10 had to leave during the course for personal reasons - these included health and re-employment.

There were no failures among the students who completed their Access course. The destinations of students are :

| | | |
|---|---|---|
| 1 | UEA | PGCE |
| 7 | UEA | DEGREE COURSE |
| 1 | UEA | EXTRA-MURAL CERTIFICATE IN LITERATURE |
| 6 | OU | DEGREE COURSE |
| 1 | HE | CLEARING (LATE DECISION) |
| 6 | SUFFOLK COLLEGE | DEGREE PROGRAMME |
| 1 | NURSING | |
| 1 | EMPLOYMENT | |
| 3 | DEFER TO 1995/6 | |
| 27 | | |

The feedback from both staff and students has been positive. Students have welcomed the chance to study locally - not only is it more convenient for them but it has given them the opportunity to develop skills and confidence in a familiar, home environment. Staff teaching on the courses have enjoyed the experience of teaching 'outside' their institution and have felt that the positive aspects of working in the community have outweighed the inconveniences of travel and sometimes having fewer resources available to them and the students.

*Research Results :*

A preliminary analysis of the research data collected indicates that the results reflect the national picture in student profile. One interesting fact that has emerged is the time a student takes between first deciding to investigate an Access course and enrolment - this process can take up to three years and is dependant on a student's personal circumstances. Student experience locally in applying to HE is also similar to that found in other studies, particularly the difficulties encountered in selecting a destination so soon after beginning the course, the unsuitability of the UCAS form for adults and the diversity of experience in offers made and the likelihood of interview between departments and institutions.

*Rural Access 1994/95 :*

The Project Director worked closely with course teams to publicise and market the courses in Hadleigh, Saxmundham, Sheringham and Watton. The emphasis has been on a personal community-based approach, staff providing information sessions throughout the two counties. Recruitment to the courses has been steady, the most successful again being Sheringham where 18 students are enrolled and there is a waiting list. The Project Director is hopeful that all courses will run, though there are doubts about the Saxmundham course where the number enrolled remains at 8.

***Project Evaluation***

The project team and the Steering Group feel that many of the achievements of the first year have been sustained in this second year. In addition the project has :

1) Raised awareness of the issues surrounding the national debate on post-16 credit frame works and contributed in practical ways to advancing the process of accreditation in the region.

2) Demonstrated that provision, formerly based exclusively in the Colleges, can be effectively delivered in outreach locations.

3) Provided the opportunity for nearly 55 students from the region to progress into HE through the Access courses in rural areas and the successful development of the 2+2 BA(Hons) in Social Work.

4) Made a valuable contribution to collaborative work in the region between FE, AE, HE and other agencies.

5) Initiated a long-term research project which will inform policy on admissions and other related aspects of adult students entering HE in the region.

# The Development of Personalised Instruction Material and Procedures in Mechanics


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Dr. Diana Laurillard,
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Dr. Karel Senkiw,
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*Abstract*

Imperial College is developing over a three-year period a Personalised System of Instruction in Mechanics for use by first-year university students of engineering and physics. The intention is to cope with the varied previous experience of students by providing a set of self-study modules that will emphasise the essential concepts and methods of mechanics. After trials with students of three of the early modules, useful data and comment were obtained which have been incorporated in the production of subsequent modules. During the second year of the funding period work has concentrated on producing a suite of modules which would cover sufficient ground to be of use in the teaching programmes of the contributing departments.


*Aims & Objectives*

The general aim of the project is to help both engineering and physics students to acquire an understanding of the key concepts and methods of mechanics and to develop their ability to apply this in the solution of problems. The theme of mechanics was chosen because of its relevance to a wide range of engineering and scientific disciplines and because it is a subject which many students find difficult. By providing a modular structure, we aim to produce a system which should be able to cope with the students' increasingly varied previous experience of learning mechanics and to allow them greater control over the timing and pacing of study. We also aim to produce materials and methods which can be used equally by both physics and engineering students. The intention is to help students achieve mastery of the key parts of mechanics rather than to transmit awareness of a wide range of topics. There is no attempt to cover all the material normally included in a mechanics course.

The specific objectives of the project are,

a) to produce written self-study materials which promote active learning,

b) to explore ways in which these may be used in conjunction with lectures, tutorials and small study groups,

c) to produce a system for their incorporation into the first year degree courses in Aeronautical, Chemical, Civil and Mechanical Engineering, and Physics,

d) to investigate the feasibility of extending the project to include computer based materials,

e) to evaluate the materials and methods developed in trials with first-year students.

*Progress of Project, 1993-94*

A conceptual plan of mechanics has been produced which indicates logical connections and the flow of ideas. The plan has been used to develop self-study modules covering different aspects of the subject. The structure which has emerged incorporates a series of core modules which would be used by both engineering and physics students followed by different streams of more specialised modules suited to particular groups. Since interconnections are indicated on the diagram, students can also make their own selection on the basis of their particular backgrounds and needs.

Each module is structured as follows :
a) Outline of contents and statement of prerequisites.
b) Learning objectives.
c) A context section giving fields of applications and links with other modules.
d) Main text with frequent "in text questions" and worked examples.
e) End of module self-assessment test.

The modules contain frequent references to the recommended textbooks employed in the Physics and Engineering courses at Imperial College and also contain frequent references to applications. Problem solving ability is nurtured through inclusion of worked examples with discussions of points arising in the solution of problems. Students may work with the modules at their own pace either alone or in small groups. The participating departments will decide on the way in which tutorial support is provided for this activity. In some cases, this could be peer-tutoring organised by an experienced academic. In other cases, it could be within conventional tutorial or problem-solving classes. Participating departments will also decide on the relation between the modules and courses based on lectures.

In the initial stages of implementation we expect that the modules would be used by departments as a bridge between pre-university courses (particularly A Levels in Physics and Mathematics) and university Mechanics courses. It is also likely that they would be used as an adjunct or supplement to conventional lecture courses with advice on use and monitoring of outcomes being done by tutors. It is anticipated that, at least in some cases, as experience with the use of the modules grows, lectures (and lecturing style) will be modified to concentrate on applications and illustrations of the relevance of the concepts, with much of the basic learning being done via study based on the modules. More specialised, advanced topics in mechanics would still need to be introduced via lectures since they would require verbal explanations and justifications.

*Project Outcomes*

The team first concentrated on establishing detailed objectives and structures for the modules based on the perceived needs of students from the participating departments. By June 1993 the team had produced four modules. These were on the topics: "Kinematics", "Newton's Laws", "Free-Body Diagrams", and "Friction". During the second year, modules on "Work and Energy", "Static Equilibrium", "Stability of Equilibrium" and "Stress and Strain" have been produced. Modules on "Structures" and "Conservation of Momentum" have been

started while modules on "Angular Momentum", "Planetary Motion" and "Rigid Body Dynamics" are planned.

Several Departments of Imperial College are investigating specific schemes for using the modules produced so far in their first year courses. An extension to include a module (or modules) on "Fluid Mechanics" is being considered.

*Project Evaluation*

Three of these modules (Kinematics, Newton's Laws and Free-Body Diagrams) were evaluated in a three day intensive "workshop" held in June 1993 in which 27 first-year students from all the participating departments worked through the modules in small groups. Students were allowed to work at their own pace and without intervention from academic staff. When students had finished working through a module, they took an end-of-module test consisting of a selection of written problem-solving exercises which were intended to allow students to assess the level of their mastery of the material of the module. When students had completed this test, those who had finished first were encouraged to help other students who were progressing more slowly. In addition to the students' work on the modules, there were two lectures from academic staff to provide insights into the relevance of the material and to provide some extra stimulation. The times that each student took to complete the study of each module and its associated end-of-module test were recorded. The marks obtained in the end-of-module test were considerably higher than typical marks obtained in normal course examinations indicating that a degree of mastery had been achieved with respect to the fairly limited set of topics covered. The marks obtained showed little correlation with the time students took to study the module. Further details on the outcome of these evaluations were contained in last year's report.

As the evaluation carried out in the Summer of 1993 achieved its purpose, work in 1993-94 has concentrated on producing an extensive suite of modules and further evaluations will be carried out in the coming year.

# REGIONAL AWARDS SCHEME


*Project Team*

Dr. D. Goldman - Project Manager, Executive Director, School of Continuing Education (SCE), UKC.
Ms. N. Evans - Regional Awards Scheme (RAS) Research and Development Officer, SCE, UKC.
Mr. J. Wakeford - External Assessor, Director, School of Independent Studies, Lancaster University.
Mr. N. Riding - Secretary to SCE, UKC.
Ms. A. Harrison - Co-ordinator, General Adult Education Programme, SCE, UKC.
Mr. L. West - Lecturer, Unit for Study of Continuing Education, SCE, UKC.
Ms. C. Nutley - Lecturer in Psychology, SCE, UKC.
Ms. V. Stirrup - RAS Mentor, SCE, UKC.

*Institution*

School of Continuing Education, University of Kent at Canterbury, Cantebury, Kent CT2 7NZ.


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*Abstract*

This project is designed to develop a Regional Awards Scheme (RAS) in Kent which will award credit for formally acquired non-assessed prior learning, informally acquired experiential learning including work-based learning and learning acquired through independent study.

It is intended that the project will open up opportunities for study at Certificate, Diploma and Degree level.


*Aims & Objectives*

The aims and objectives for the first and second phases of the project were as follows :

- to develop a free-standing assessment module which would allow credit to be awarded at Level 1 for formally acquired prior learning derived from a variety of courses including courses run by the School of Continuing Education and external agencies, such as the Kent Adult Education Service and the Workers' Educational Association;
- to design an appropriate Contract procedure;
- to seek University approval for the RAS Module and Contract procedure;
- to publicise, run and evaluate a Pilot RAS scheme;
- to recruit part-time tutors to teach on the assessment module and to develop and implement a staff development programme to address their needs;
- to develop an Independent Study Module to allow progression to Level 2.

*Progress of Project, 1993 - 94*

Activities prior to the running of the Pilot RAS Scheme in January 1994 focused on the organisation of a publicity drive to raise awareness of the Pilot Scheme and staff development in order to prepare tutors for their new roles. Once the Pilot was under way, developmental initiatives concentrated on the production of assessment criteria in Literature and Creative Writing and the development of a Level 2 Independent Studies Module.

*Project Outcomes*

*Publicity :*

a) A poster was produced and distributed to prominent outlets in the county.

b) An article about the Scheme appeared in the local press.

c) The Project Officer appeared twice on Radio Kent and the Scheme was advertised on Invicta Radio.

d) A press release was circulated.

e) A free information day for prospective students was held in early December.

*Staff Development :*

Ongoing staff development workshops were organised for the part-time tutors recruited to teach on the assessment module. During these workshops the following issues were explored:

a) the complexities of dealing with different kinds of learning;

b) the relationship between non-assessed prior learning and formally assessed academic learning;

c) methodological issues relating to the assessment of group work;

d) assessment issues raised by the Pilot;

e) the role of the tutors as mentors.

The workshops provided a safe environment in which the anxieties of tutors could be dealt with and they were instrumental in procuring staff commitment and acceptance of the Scheme.

*Assessment Criteria :*

The first phase of the project correctly identified the requirement for learning outcomes to be developed in order to enable judgements to be made about the equivalence of learning claims made by students. As it had been decided that a highly focused approach should be adopted for the Pilot, learning outcomes were produced in Literature and Creative Writing. These outcomes describe the standard of work students are expected to have achieved at the end of the first and third years of a conventional degree. During the second phase of the Project, detailed assessment criteria were developed which describe in detail the criteria which students must satisfy in order to demonstrate achievement of the learning outcomes. A Handbook on Assessment was compiled for the benefit of both students and the RAS Mentors. This document which is subject

to ongoing review contains explanatory sections on the RAS Contract Procedure and on the assessment criteria which will be used to assess essays, dissertations, examinations, creative writing ability, oral presentations and group work.

a) The Pilot Literature Scheme

The publicity drive held during the Michaelmas term resulted in ten recruitments onto th Pilot Scheme. As a result two groups were set up, one on campus in Canterbury and the other based in the Adult Education Centre at Hempstead Valley.

The Pilot Scheme is still ongoing and students are currently using the Long Vacation to prepare their evidence for assessment. This task will be undertaken by two RAS Assesso whose judgement will be subject to the scrutiny of an Independent Examiner appointed from the Faculty of Humanities.

b) Independent Study

A four unit Independent Study Module has been developed which will be made availabl in 1995/6, in order to facilitate progression at Part II onto the SCE part-time Award Bearing Programme including the part-time General and Honours BA Degree. The course has been designed to allow students to develop an academic interest of their own and it i intended that through applied research, student understanding of academic methods of enquiry, research methodology and study skills will be enhanced.

c) Widening of the Scheme

The fully operational RAS will be offered in a wide range of subjects representative of the SCE's Adult Education Programme. This proposed extension of the Scheme into other subject areas is, however, dependent on a parallel development of learning outcomes in cognate humanities subjects. In order to accelerate progress in this area a colloquium on learning outcomes has been organised for the Humanities Faculty to be followed by a number of workshops in which selected Humanities colleagues will meet to develop learning outcomes at Level 1 and Level 2 across the entire Humanities subject range.

d) Dissemination

As well as taking part in the second national conference on Flexibility in Course Provision held at Loughborough University and contributing material to FCP News, the Project Officer participated in a number of other dissemination events. Activities included:

- the organisation of a Conference on Flexible Learning at City University where the Project Officer gave a presentation on the Regional Awards Scheme and chaired a plenary discussion on flexible learning;

- a presentation on Accreditation, Modular Degrees and Flexible Learning at an International Symposium on Independent Learning held at Cambridge University. The presentation was followed by a round table discussion led by the Project Officer;

- participation in a workshop on flexible learning organised by the University of Plymouth;

- attendance at a number of meetings for part-time tutors at the University of Kent where the Project Officer gave presentations relating to the RAS, accreditation and learning outcomes.

e) Embedding of the RAS

Changes to HEFCE funding mechanisms for Continuing Education have resulted in the SCE introducing a scheme to accredit its General Adult Education Programme, which makes use of the RAS as a method of enabling students to achieve greater volume of credit, with the possibility of it being at a higher level.

*Project Evaluation*

Mechanisms for evaluating the Scheme have been established by means of student evaluation forms and tutor reports. As the Project is still ongoing detailed analysis of student comments has not yet been undertaken. However, it is clear from informal feedback that students attending the Module have grown in self-confidence and motivation. Although the group at Canterbury is disparate in terms of age and prior educational attainment, this is not the case at Hempstead Valley where the RAS Mentor was successful in demonstrating the benefits of the Scheme to her A-level Literature students. Typically, this new client base comprises female students with young families who are committed to addressing their own educational needs, are undeterred by rigorous forms of assessment and keen to make use of the opportunities for flexible access to HE offered by the Pilot.

The experiences of the RAS Mentors teaching on the Module have highlighted the challenges of coming to terms with new terminology and theories, and the need to develop skills associated with the recognition, assessment and accreditation of prior learning. Two areas of concern have been recorded. The first relates to the amount of time devoted to individual guidance of students. This is an issue for many flexible learning initiatives and clearly needs to be addressed at an institutional level to ensure that student choice is properly informed by access to a guidance service which is adequately resourced. The second area of concern for the tutors was the difficulty they encountered in getting students to understand that the assessment module is not subject based. This problem has clearly arisen as a result of the Steering Committee's initial decision to pilot a subject specific module, but will be rectified during the coming year when the Project will be widened to encompass other cognate humanities subjects.

Finally, the Project has highlighted the need for clarification regarding the amount of credit which can be accumulated towards an award for prior learning undertaken off campus, for procedures for advanced standing, and for minimum requirements for registration. These matters have been referred to the University's Teaching Committee.

# LANCASTER SUMMER UNIVERSITY
# (REGIONAL ACADEMIC SUMMER SCHOOL)


| | |
|---|---|
| *Project Director* | Dr. Keith Percy. |
| *Project Co-ordinator* | Roz Pardee (1/2 time). |
| *Senior Development Officer* | Darrell Brooks (Appointed: 1.2.94). |
| *Development Officer* | Gerry Cotter (1/4 time). |
| *Administrative Assistant* | Tim Farron. |
| *Secretary* | Nikki Skews. |
| *Institution* | Lancaster University, Adult Continuing Education, Storey Institute, Meeting House Lane, Lancaster LA1 1TH. Tel: (0524) 849494, ext. 7570. Fax: (0524) 849499. |


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*Abstract*

The Lancaster Summer University (LSU) was established in the autumn of 1992 in order to develop greater flexibility in the University's course provision by offering over the summer vacation period credit bearing and non credit bearing courses for HE students. In 1993, the LSU offered 7 credit bearing courses, and 12 non credit bearing courses. In 1994, this had increased to 22 credit bearing courses, and 16 non credit bearing courses. 11 credit bearing (CB) courses ran successfully, the subjects were: Statistics (Year 1); Independent Studies, Biblical Hebrew, New Testament Greek, Medieval Latin, Sanskrit, Classical Architecture, Process, Performance and Documentation, Neuromuscular Physiology (Year 2/3); The Education and Training of Adults (MA module in Education); and This Scepter'd Isle: Aspects of British History and Culture, (International Programme for North American Students). Of the non credit bearing (NCB) courses, 12 ran, and 2 were offered twice due to high demand. The successful courses included: An Introduction to Word Processing, Touch Typing, Learning About Databases, Spreadsheets Explained, Writing a Dissertation, Developing Presentation Skills, Tutoring in Higher Education, Discovering English Grammar, Career Development for young Professionals, and three courses on Study Skills for Higher Education,.

The LSU 1994 ran over an eight week period, from 11 July to 2 September, with final examinations (when applicable) held on 16 September 1994. During this period, a variety of social events were organised students. All facilities provided for students during regular term-time were available during the LSU period. There were 373 student enrolments; including a large number of students from HE institutions outside Lancaster.


*Aims & Objectives*

- to provide undergraduate and postgraduate students with the opportunity to gain credit during intensive courses in the Summer period. In some cases (e.g. part-time students) this may have the effect of shortening the overall period of study for a degree;

- to provide undergraduate students with the opportunities of taking remedial, refresher, preparatory, adjunct and supporting courses relevant to their degree programme. This objective is of particular relevance to non-traditional students;

- to provide mature, non-traditional and other students with general orientation and with opportunities to remedy their deficiencies in content and study skills preparatory to entry to the first year of higher education study;

- to provide students on part-time and distance programmes with opportunities for intensive residential study (and thus to encourage the development of such programmes);

- to provide North American and other overseas students with opportunities to gain credit for studies undertaken during the Summer;

- to provide a dynamic, evolving and flexible facility which, by its multi-functionality, will support and assist the institutions of higher education in the North West and elsewhere to expand their student numbers and to design their degree programmes to meet individual student needs; to identify subject specialist strengths of particular institutions and to rep resent them in the Summer School for the benefit of all participating students;

- to develop an initiative which will allow for more intensive use of plant and more cost-effective use of teaching resources by extending the teaching year and increasing the number of students taught.

*Progress of Project, 1993 - 94*

*Course Development and Structure :*

Non Credit Bearing Courses :

In 1992 4 non credit bearing courses were offered to students during the summer as a pilot programme to the 1993 LSU. From this experience the LSU was able to develop a greater range of courses for its first year, emphasising skills-based courses: language skills, PC skills, and study/academic skills. In 1994 a wider range of NCB courses were offered including Accelerate your Maths and Discovering English Grammar the languages were largely replaced by a range of new courses.

A variety of formats were used for these courses each set up according to the pattern best suited to the subject, learning materials, and exercises. In general the format was more intensive than that used for the CB courses.

Other new courses for 1994 included two Career development courses Tutoring in Higher Education and Career Development for young Professionals, both were successful attracting students in substantial numbers despite being relatively high-cost.

Credit Bearing Courses :

Credit bearing courses offered by the LSU continued to be determined by departments willing to provide a course during the summer period, and by those subjects for which a student market was expected. The LSU also continued to aim to run courses from each of the faculties: Humanities, Social Sciences, Sciences, Education, the Management School, and the area of Independent Studies. The Management School was the only area of the university not to offer a course in 1994.

Seven courses ran which are not normally offered during the term-time year, New Testament Greek was offered again this year. Biblical Hebrew and Medieval Latin were developed by the Religious Studies department using the same format as the department's Sanskrit course (which is offered regularly). Classical Architecture was validated through the History department, while Neuromuscular Physiology was developed by the Department of Biological Sciences using a similar but smaller module from Part 2b, BIOL 322. The Theatre Studies course, Process, Performance and Documentation was specifically designed for the Summer University. In each case, new courses were approved through the University's validation procedures: by department, faculty teaching committee, faculty board and final approval by Senate.

Only four of the eleven courses have been regularly offered during the term-time year. Of the four, the format of three were changed to take into account the more intensive nature of the LSU (Statistics was offered as a five week module, exactly as it is offered during term-time). Although the total number of contact hours remained the same, they were offered in an 8 week period instead of the regular 10 or 20 week periods.

This Scepter'd Isle: Aspects of British History and Culture, an International Programme for North American Students is a new and quite distinct venture for 1994. This credit-bearing course is designed specifically for North American students and consists of four weeks of intensive study at the Charlotte Mason college, Ambleside. 11 students are enrolled prior to their own study-abroad programmes at Lancaster or other institutions throughout the UK. Each will be awarded 4 credits towards the degree from their host institution.

In 1994, all but one lecturer was from Lancaster; the one exception had worked as part-time tutor for the University's Department of Continuing Education.

*Quality Assurance :*

Monitoring the LSU :

The LSU — its programme, its organisation and its administration — are monitored by the Summer University Advisory Group, set up by the University Senate. The Advisory Group continue to be involved in the development and overview of the LSU in 1994 and beyond.

Staff/Student feedback :

Fortnightly meetings for student representatives and lecturers were held over the summer. Through these meetings, the LSU monitored student and staff needs and made provision accordingly. Close contact was kept with the lecturers in order to ensure that they received appropriate support, and that the course quality was maintained.

Evaluation forms for staff and students were distributed at the end of each course for comments, suggestions and criticisms. These are being used to assess the level of success of the 1994 LSU and will also influence the planning of the 1995 programme.

Informal discussions with students and lectures, and conversations held during social events provided useful information and suggestions which will further enable the LSU to adapt meet student/staff needs.

Assessment/Examinations Procedures :

All course assessment, including examinations procedures, have followed University systems

used during regular term-time. Part 2 coursework and examinations will be externally marked.

*Information Dissemination, Marketing and Student Recruitment :*

General Information :

A leaflet aimed at academics and students was distributed widely to HEI's with information on the 1994 LSU programme. It contained basic course details and a prepaid form for requesting a copy of the prospectus.

Programme Information :

A main prospectus was published in March 1994 containing detailed programme and course information and an application form. The prospectus was also used as a vehicle to advertise other Lancaster university programmes, notably the International Summer School in Social Theory, Open Studies and Summer Programme courses.

Posters and programme-specific leaflets were circulated to relevant subject departments, libraries, and careers offices of HEI's throughout Britain. These leaflets contained basic course details and a form for requesting further information. In addition, a number of advertisements were placed in Students' Union newspapers at HEI's in the North West region informing prospective students of the available courses.

HEI visits :

Members of the LSU staff visited HEI's which expressed an interest in the LSU to inform them about the programme, and to discuss the possibility of credit transfer and suitability of the LSU courses for their own students. LSU staff also spoke to students at other institutions, by addressing a general meeting or by setting up an information stand.

Conference, Flexibility in Higher Education - The Shape of Things to Come :

A highly successful conference was hosted by LSU at the end of May 1994. The aims were threefold: to disseminate the 'Lancaster experience', to discuss other projects funded through the FCP initiative and to hear both Professor Graeme Davies and Professor David Robertson.

*Student Finance :*

LSU staff continued to negotiate with Local Education Authorities in an effort to obtain excess weeks payments for students taking a LSU course as part of their degree. Students who were awarded additional grants received £53.30 per week for the 8 week period of study. Credit bearing students were given the opportunity to apply for the grant, 67 students did so, requesting support from 26 different LEAs. All were successful.

***Project Outcomes***

*Summer University Enrolments :*

Overall, there were a total of 373 registrations on 23 courses. 109 students enrolled on the 11 credit bearing courses, an increase of 56%. On Non-Credit bearing courses the level of recruitment was stable at 264 enrolments.

*International Programme :*

A successful programme was offered this year with 11 enrolments on the course This Scepter'd Isle: Aspects of British History and Culture, an International Programme for North American Students. Feedback from students so far is very positive and is further encouragement for the development of other such courses.

*Conference, 25 May 1994 :*

Flexibility in Higher Education: The Shape of Things to Come was a successful and well received opportunity to disseminate the latest experience from the Lancaster Summer University. 65 delegates participated in a variety of workshop and plenary sessions for projects from the FCP initiative and listen to Professors Davies and Robertson.

*Summer University Network :*

The first meeting of the summer University Network is to be held on Thursday 15 September 1994. Institutions interested in using the summer for a variety of activities have been invited to discuss the formation of a network to be set up in 1995.

*1995 Programme :*

Plans for the 1995 programme will be influenced by the experience of the 1994 programme, including which types of courses should be offered next year and which courses are not appropriate, changes in office administration and organisation, ways to improve facilities and marketing of the programme. The LSU expects to offer 20-25 credit bearing courses and 15 non credit bearing courses. In addition, a second international programme for Far-Eastern students is being organised for 1995 which, along with a few of the other courses (both credit and non credit bearing), will be offered at Lancaster University's Ambleside campus. More than 600 students are expected to enrol on an LSU course next year.

*Project Evaluation*

The Lancaster Summer University is in the process of completing the evaluation of its 1994 programme, with final marks and credit bearing student evaluation forms still to be received. The evaluation of the non credit bearing courses is still on-going, with very positive responses from students and staff regarding the courses and the organisation and administration of the programme overall.

A preliminary comparison is now possible between the 1993 and the 1994 LSU. There are some notable differences in the character of the two programmes: In 1994 the number of credit bearing courses which ran increased by 57%. There was a larger proportion of credit bearing courses not normally offered in the term time at Lancaster; but there were a high proportion of courses that did not run. The variety of courses is greater in 1994 with the notable inclusion of an international programme. The number of grants paid to students increased by almost four times.

The successes of the 1994 LSU are tempered by the disappointment over the number of courses that did not run. A priority for 1995 is for more effective direct marketing of students particularly in the North West.

An interim report on the LSU has been sent to the University Senate, with a final report expected by the end of October.

# Accelerated Routes To Undergraduate and Postgraduate Degrees


*Project Team* — The team, which contains one member from each of the three science faculties of the University, has remained unchanged since last year.

*Project Co-ordinator* — Dr. A. Thomson, Institute of Environmental and Biological Sciences.

*Team Members* — Mr. J. J. Gallagher, School of Engineering, Computing and Mathematical Sciences,
Dr. D. J. Meredith, School of Physics and Materials.

*Institution* — Lancaster University, Department of Biological Sciences, Lancaster, LA1 4YQ.


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*Abstract*

The Biological Sciences M.Sci. degree scheme has continued detailed development although first year applications for 1994 were essentially non-existent due to inadequate publicity. A new work-based scheme for a B.Eng. degree is in process of development which will involve short intense periods at university followed by reflection and further study at home.


*Aims & Objectives*

The primary aim is to provide intensive and accelerated routes to BSc and to MSc for selected able and highly motivated students. This expresses itself in the development of routes to science degrees. At present there are two schemes on which we are concentrating.

a) the Biological Sciences M.Sci scheme,

b) a work-based scheme in Engineering.

*Progress of Project, 1993-4*

*MSci in Biological Sciences :*

This scheme, which allows completion of the equivalent of 4 years of study in 39 calendar months, was described in detail in our 1993 report. We were unable to complete the design of this course and obtain approval from the University in time to enter it in the University Prospectus and UCAS Handbook for 1994 entry. We produced a glossy brochure as publicity which was circulated in late August 1993 to the top 800 schools in terms of their number of UCCA candidates in 1992-3, these schools account more than 25% of all UCAS candidates. This mailing produced precisely 3 applicants, none of whom is a firm (CF) candidate for the course. Conversations with the 300 or so candidates who attended Open Days for the Biological Sciences B.Sc. degree indicated that only 1-2% of them had ever heard of it. The course is in the appropriate documents for 1995 entry and we expect a better response

The Biological Sciences department agreed that the scheme should be available for entry in the second year commencing in October 1994 and seven of the 1993-4 Biological Sciences first year have registered for it. Development of the detailed content and delivery of the Master's level

modules, which will be delivered for the first time in 1996, continues. We are at present (August 1994) in process of appointing a technical assistant to help develop the practical courses in the Master's level of the scheme.

*Engineering Schemes :*

Discussions between our Engineering department and some of their industrial contacts suggested that there was a considerable number of people in industry who had originally qualified via technician/BTEC routes whose progress was now blocked because of their lack of degree-level study. Some employers expressed a willingness to release these people for short periods during the year to allow them to obtain degrees in Engineering. After various discussions we are in the process of initiating the INSEDE (In-Service Engineering Degree) scheme. The content of this scheme will need to be acceptable both to the employers, who will be releasing staff time and to the Engineering Institutions as well as fulfilling the normal University degree requirements.

Candidates offering good BTEC qualifications would normally be admitted directly to the second year of our Engineering degree. We are therefore producing a scheme whose content is the equivalent of the final two years of our normal B.Eng. course. Because of the students' industrial experience the course will place heavier emphasis on the areas, e.g. theoretical and mathematical background, where these students are likely to be weakest.

The Committee of Engineering Professors has recommended that an undergraduate engineering degree should contain about 500 contact hours per academic year, this includes practical classes. In this course students will attend the university for periods of three weeks (= 15 teaching days) four times per year for two years. Each three week period will be very intensive and contain 125 contact hours. There are 1000 contact hours over the whole course. During the sessions at Lancaster students will receive a list of recommended reading and other work which they will be expected to complete before returning to Lancaster again. Some of these sessions will take place during normal university vacations.

While away from the University study will be supported :-

a) By local regional self-help groups with scheduled tutor attendance, probably on a weekly basis.

b) By guidance of the home study through notes and other materials.

c) By computer conferencing/e-mail.

While at the University welfare support will be provided by normal student services including those in place for the Summer University programme. Students will also need welfare support at home and, while much can be done via telephone or e-mail to support services at Lancaster, we will also arrange for suitable persons to be available locally for counselling purposes.
For the students this gives an opportunity to gain a degree while remaining in their home area. We anticipate that student's fees would be paid by their L.E.A.'s at the full normal level since contact hours are comparable and the attendance, including tutorials at the industrial base and project work, is over the 18 week minimum set by the HEFC.

For the University this course gives us a structurally unique degree scheme which also forms a feeder to our established industry based M.Sc in Project Engineering. Because a significant proportion of the teaching will be in vacations it provides a more efficient use of buildings and library facilities. It may provide sufficient resources to allow more than one cohort of students

to enter in any one year, since more sets of three week attendance sessions can be introduced as necessary. Since the scheme was devised we have initiated an adaptation to fit in with a TEC scheme for new apprentices.

A provisional course outline is attached. The scheme will be put through the necessary University approval structures and engineering institution accreditation sought during the coming year. We anticipate the first cohort of students commencing in September 1995. An outline structure will be found below.

*Project Evaluation*

The success of these schemes can only be judged in terms of student response to them, both in terms of applications when the schemes are properly advertised, and in terms of the student response while following the courses. We are not yet able to investigate either since next year will be the first application year where the M.Sci. course has been normally publicised, and the Engineering scheme is only just in final process of development.

**INSEDE Scheme** (Contact hours in parenthesis)

**Year 1**

| *Session 1* | | *Session 2* | |
|---|---|---|---|
| Preparatory Studies | (25) | Electronic Engineering | (30) |
| Introductory Mathematics | (50) | Mechanical Engineering | (30) |
| Computer Techniques | (25) | Engineering Computation | (30) |
| Introduction to Design | (25) | Engineering Management | (10) |
| | | Project | (25) |
| *Session 3* | | *Session 4* | |
| Electronic Engineering | (30) | Electronic Engineering | (30) |
| Mechanical Engineering | (30) | Mechanical Engineering | (30) |
| Engineering Computation | (30) | Engineering Computation | (30) |
| Engineering Management | (10) | Engineering Management | (10) |
| Project | (25) | Project | (25) |

**Year 2**

| *Session 1* | | *Session 2* | |
|---|---|---|---|
| Computer Architecture & Systems | (90) | Signal Processing & Communications | (90) |
| OR | | OR | |
| Mechanical Engineering II | (90) | Manufacturing Technology | (90) |
| Engineering Project Management | (10) | Engineering Project Management | (10) |
| Project | (25) | Project | (25) |
| *Session 3* | | *Session 4* | |
| System & Control Engineering | (90) | System & Control Engineering | (90) |
| Engineering Project Management | (10) | Engineering Project Management | (10) |
| Project | (25) | Project | (25) |

All but the first session of the first year will count towards the final degree classification. Examinations will be held after, but not immediately after, each pair of sessions, probably in the student's home area.

# The Application of Syndicate Group work and Competency Profiling to an Undergraduate Programme of Professional Study

*Project Team* Steve Ferguson.
Phil Garrigan,
Jane Pearce (Co-ordinator),
Ron Stewart (Evaluator).

*Institution* Department of Education, University of Liverpool, P.O. Box 147, Liverpool L69 3BX.

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*Abstract*

The project team has worked with tutors in the School of Architecture at the University of Liverpool in developing Syndicate Group Work materials. Efforts to develop an appropriate profiling system for assessment have been less successful because of resistance to competency-based approaches. This work will continue on a more limited scale in 1994-95. New developments are in place in the Department of Therapy Radiography, and the Faculties of Medicine and Law. The experience with Architecture has focused the project team's minds on the process of curriculum change, and on the importance of developing evaluation systems which encourage ownership of the change elements by the tutors in collaborating departments.

*Aims & Objectives*

The FCP team within the Department of Education has worked with tutors in the School of Architecture to develop Syndicate Group Work methods of teaching; to establish a competency based profiling system in part of the assessment procedures; and to address the rôle of post-graduate teaching assistants in relation to flexible course provision.

These initial broad aims remain. Work on a more limited scale with Architecture tutors will continue in 1994-95. However, the aims have been extended to cover work with three other faculties/departments concerned with professional training - Therapy Radiography, Medicine and Law, with the possible involvement of Nursing. The balance between the aims has necessarily to change to meet the particular needs of the different collaborating departments. In Therapy Radiography for example, the emphasis is on developing group work; in Medicine, on an appropriate form of assessment for problem-based learning.

*Methodology & Outcomes*

A team of four Education tutors (including an evaluator) works with each department on the planning and implementation of group-based learning activities and materials and on appropriate forms of student assessment. The training needs of staff are identified and attempts made to address them. Evaluation data are obtained directly from within the team of educationists, the participating tutors in other departments, samples of students, as well as from direct observation and documentation.

Outcomes for 1993-94 have been the result of the work with the School of Architecture. In terms of the product outcomes, group learning materials have been devised in the following areas of the curriculum for first year students.

1) **Introductory activities for working in groups.**

2) Mapping activities in relation to city sites.

3) Analysis of buildings.

4) Site analysis.

The attempt to devise a competency-based profiling system was perceived quite early in the year to be unrewarding, because of the suspicions architecture tutors had of a competency-based curriculum. This led to discussions about a profile designed to assess more complex aspects of the students' learning, but those, too, foundered. This has led the team to put its work with the architects within the context of the process of curriculum change.

An analysis of this process is given in a paper to be delivered at the First International Symposium on Flexible and Independent Learning at Cambridge (September, 1994): "Change in two cultures." The experience with Architecture has been invaluable in shaping the methods of working with new collaborators in other parts of the university.

***Project Evaluation***

The evaluation style of the Project continues to be responsive and formative. However, a concern which has grown in the course of the work with Architecture has been how evaluation as a process can be diffused across the various stakeholders in the collaboration between Education and the other departments. The concern is how best to organise evaluation in a way which enhances the sense of ownership of the evaluation data by tutors, so that the possibilities of change are optimised.

Evaluation methods used so far have been qualitative, to reflect the values and understandings of tutors. However, methods remain flexible so that other needs (perhaps for harder data) can be met.

Evaluation reports are available which provide appropriate information for the project Steering Group which meets three times a year.

# A Strategic Approach to the Promotion and Support of Flexible Patterns of Teaching and Learning Across University Courses


*Project Co-ordinator* Mrs. Winnie Wade - Flexible Learning Co-ordinator.

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*Abstract*

The Flexible Learning Initiative at Loughborough University of Technology was established in the autumn of 1992 to provide a strategic approach to the promotion and support of flexible patterns of teaching and learning across the University. In the first year of the programme, ten projects were established across a range of departments, developing a variety of flexible learning strategies. The second year of the programme focused on the development of School-wide flexible learning projects, one in each of the four Schools in the University. The projects have been supported through appropriate staff development. The wider flexible learning issue of student assessment has also been addressed through the work of the Flexible Learning Initiative. This focus on student assessment will continue in 1994-95.


*Aims & Objectives*

*Broad Aim :*

To implement more flexible patterns of teaching and learning across the University, supported by appropriate staff development.

*Objectives :*

a) To provide a coherent framework for University staff to enable them to adapt existing courses.

b) To provide an extended repertoire of teaching styles to encompass student-centred learning.

c) To provide learning opportunities and learning support for students that build on the evident changes in teaching and learning styles in schools.

d) To provide structures that cater more effectively for the needs of non-traditional and part-time students.

*Progress of Project 1993 - 94 and Project Outcomes*

During the second year of the project the Flexible Learning Initiative has focused on School-wide needs by establishing and supporting a flexible learning development project in each of the four Schools in the University. This was as a direct result of changes occurring in the University with more responsibility being devolved to the four Schools. Schools needs were identi-

fied through discussions with the Pro-Vice Chancellor (Teaching), Associate Deans (Teaching) and Heads of Departments.

*Flexible Learning School Development Projects :*

1) School of Pure and Applied Science

There is an increasing awareness of the mathematical deficiencies of many students and of the wide range of their abilities and background experience. Flexible Learning materials have, therefore, been developed to support mathematical provision, initially for Chemistry students. These materials should be easily adaptable for other students in Science and Engineering departments. This initiative is seen as a pilot for more widespread adoption in due course.

2) School of Engineering

All Engineering departments at Loughborough University teach Engineering Drawing. There is much commonality between courses and efforts are being to some extent duplicated at present. Flexible learning materials for Engineering Drawing are being developed which will provide savings in time and which will help to make teaching more effective.

3) School of Education and Humanities

The Department of Information and Library Studies has been working on a collaborative project with the Flexible Learning Initiative to investigate the use of computer assisted assessment at Loughborough University. The widespread use of computer assessment would include automatic marking and fast feedback to students. Information is being disseminated to Loughborough University staff about appropriate computer assisted assessment materials and a guidance manual for staff is being published. Seminars and workshops for Loughborough University staff have supported the initiative.

4) Human and Environmental Studies

An initiative is being undertaken which is investigating the need for study skill provision across the School. Materials are being developed which will focus on the needs of particular groups of students - e.g. non-traditional entry and mature students.

*Student Assessment :*

The Flexible Learning Initiative recognizes the central rôle of assessment in learning. When staff are facing the challenge of increased student numbers it is important to consider a wider variety of assessment techniques. Student assessment is intrinsic to establishing the success of teaching and hence establishing quality. The Flexible Learning Initiative has established a campus-wide network of staff who are interested in diversifying assessment. A series of lunchtime/evening seminars has been organized which has provided staff with an opportunity to exchange ideas and discuss different forms of student assessment. A Flexible Learning Initiative conference on Student Assessment took place in June 1994.

*Staff Development :*

A central programme of staff development was implemented which supported the flexible learning development projects and also addressed wider issues such as assessment and writing

flexible learning materials.

*Project Evaluation*

Project evaluation has a number of strands :

a) *Students' perceptions of Flexible Learning :*

The Flexible Learning Initiative has carried out a study to establish the student view of flexible learning. The study explored the views of both students and staff involved in the flexible learning projects established in the academic year 1992-93. Rather than simply being asked for feedback on the delivery of individual projects, the students were encouraged to identify a variety of teaching methods that they have experienced and explain what they felt were the pros and cons of each. The staff were asked to provide background information on the projects and discuss their personal views of the cross campus development of flexible learning.

b) *School Projects :*

A monitoring and evaluation strategy has been established for the School projects which are being piloted in the academic year 1994-95. Formative and summative evaluation procedures are being carried out.

# FLEXIBLE COURSE PROVISION FOR LEARNING CAPABILITY ENHANCEMENT

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*Abstract*

This report deals with flexible learning activities undertaken during the academic year 1993-1994. These have included the preparation of structured course materials and use of these materials in courses within the degree in Applied Computing and Modelling. The processes used to introduce three cohorts of students to supported self study in their first year are described. The processes used in 1993-94 is compared with those used in earlier years and some preliminary conclusions are drawn. It should be noted that these ideas are tentative and need to be tested further.

*Aims & Objectives*

The general aim of the Learning Systems Institute (LSI) is to promote supported self study programmes at undergraduate level by helping students to enhance their learning capability.

*Progress of Project 1993-94*

Progress during 1993-94 has been in the areas of production of materials and the preparation of students for independent studying.

*Production of Flexible Learning Materials :*

Sets of structured notes for use as self-study material in the LSI degree in Applied Computing and Modelling have been prepared for the following topics:-
Pure Maths I; Pure Maths II; Applied Maths I; Applied Maths II; Elements of Computer Programming; Computational Methods (I, II); Computing in Advanced Systems; Computing in Engineering; Non-numerical Computing; Computers in Operational Research.

*Review of Preparation of Students Over Three Intakes :*

The approach used to introduce learning from self-study material to students in their first year has been varied over the past three years in the light of students responses and our observation of their experiences in subsequent years. Useful insights have been gained from the differing effects that the varied introductions have had on the way students work. Significant features of the different introductions tested are outlined here and the experience is reviewed.

*Preparation of Students 1993-94 :*

Students entering in 1993 were given an introduction which established what students think the learning task is, how they set about learning, how they feel when engaged in learning, and what the outcomes have been for them in past. Some of the important distinguishing

characteristics of able learners were discussed. Means by which changes from inefficient learning approaches to ones associated with able performers may be achieved in practice were examined.

Detailed structured notes of mathematical topics were made available to students in a condensed format in the expectation that they would memorise them systematically and thus would understand how large volumes of information can be compressed.

*Preparation of students 1992-93 :*

The induction process was the similar to that for the 1993-1994 intake. Students on the 1992 intake were not provided with full structured notes. They were given template and instruction in how to write their own structured notes. The group was given a sequence of structured learning experiences. They were assigned topics to study, given questions and model answers and then they were asked to reproduce, unseen, answers to questions given in assignments. Various types of tests were tried :-

1) Tests 1 & 2 - students were required to answer identical questions with choices;

2) Test 3 - as Test 1 and Test 2 but without choice;

3) Test 4 - students were required to answer questions similar, but not identical, to those they had studied.

The first type (Tests 1,2,3) were simple replication tests, the second type (Test 4) was one of replication with modification. Generally the experience for the students was that grades for Test 2 were higher than for Test 1. Grades went down for Test 3 and were lower still for Test 4. Then in small discussion groups, students were asked to explain their experiences in terms of the ways in which they were learning. They were asked to draw conclusions about changes they ought to make. They reached appropriate conclusions but the impact of these on their way of working was not immediately obvious. In the second half of the programme the students were trained to make their own detailed structured notes.

*Preparation of students 1991-1992 :*

These students were given extensive instruction in structured note-making, organisation of mathematical knowledge, problem-solving; memorisation of theory, reviewing theory knowledge. On the basis of this instruction the students were then directly involved in structured note-making. They were given a complete conceptual framework for mathematical knowledge at the level they were studying and their tasks were to elaborate the concepts, learn theory and apply theory in problem-solving.

*Assessment :*

In addition to conventional assessment methods through problem-solving theory knowledge and links students were able to make with theory in problem-solving were tested. The aim of this aspect of assessment is to encourage the development of sound theory knowledge and the ability to use it systematically.

*Project Outcomes*

The main outcomes have been additions to the self study material for use in the degree and , insights gained from testing of processes for introducing students to independent study,

together with the effects on students' study practices in subsequent years.

The new material produced is listed above under the heading Production of Flexible Learning Materials.

Two significant insights have been gained. These are described here.

The first insight resulted from experiences with introductory processes. Of the different processes used, the best out-turn in terms of preparation for future years appears to have been the approach used in 1992-1993. Changes in 1993-1994 were introduced because the 1992 group felt that the introduction over the first half of the year, involving painstaking provision of a sequence of structured learning experiences, was slow and undemanding. In the light of experience with the 1993 intake, however, it is evident that something has been lost and it is intended to reintroduce this element in some form.

Our conclusion is that although the immediate impact of requiring students explicitly to link their own learning processes with learning outcomes may not be obvious, this has longer term benefits.

The second insight, resulted from observation and analysis of the way in which students quickly revert to old habits of study following their introduction to independent study in their first year. Surface learning is a barrier to development of independence in learning.

Students generally, to greater or lesser degrees, are surface learners. In cases where they experience difficulty solving mathematical problems they will often write down words and symbols for which they do not have a sound theoretical basis. This is a barrier to independent learning and can be overcome only by replacing this surface learning approach with a deep learning approach by the students. In the context of mathematics deep learning may be defined as an understanding of the concepts and principles involved in learning a body of knowledge, and the ability to use this knowledge and understanding in the appropriate circumstances.

*Project Evaluation*

During 1993-94 evaluation has been based on differences between our expectations of student progress in improving their learning processes and the out-turns. These differences are explained in part by the extent of surface learning referred to already. The observations we have made parallel those described by the Perry model of intellectual development. Speeding intellectual development and reducing surface learning are important issues for the future of flexible learning.

*Future Plans :*

During the next academic year work will be initiated to see what might be done to resolve these issues.

*References*

Perry, W. G.; Forms of Intellectual and Ethical Development in the College Years: a Scheme. Holt, Rinehart & Winston, New York (1970).

# EXTENDED ACCESS LINKS

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*Team Members* David Barnes,
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*Institution* University of Salford, Salford M5 4WT.

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*Abstract*

The main aim was to develop new access routes into degree level studies, for non-traditional students by enhancing the existing relationships established with further education institutions and extending such links into Sixth Form Colleges. Students will then have clearly defined pathways from the FE sector through to university graduation, subject only to their ability to achieve degree performance level at each stage of progression.

*Aims & Objectives*

To maintain a partnership with FE colleges through which students can progress into higher education, with the maximum amount of alignment of curriculum and learning support system.

The aims of the partnership to be :

- *Progression to higher education courses for those students achieving an agreed standard at the partner Further Education institution :*

  Modularisation and credit accumulation within the University and the College will facilitate FE/HE progression. It is envisaged that there would be a "ladder" of qualifications from the FE to HE, allowing students to step on and step off as appropriate. Linking the programmes with other recognised qualifications, such as GNVQ, would provide appropriate entry and exit points.

- *Franchising of access provision to Further Education partners :*

  It is anticipated that the non-advanced work currently retained by University College Salford would be franchised to FE partners within the consortium.

- *Co-operation on promotional activities and recruitment which emphasises progression opportunities :*

  Both HE and FE partners would publicise the progression opportunities offered by the consortium which is seen as a recruitment advantage. Identifying clearly a route through FE and HE to University would encourage students to consider at an early stage their possible progression.

- *Access to facilities at Salford for partner institutions :*

  Students at FE partner institutions would visit UCS and the University to use equipment and facilities which may not be available at their own institutions. Through this early direct involvement with higher education it is anticipated that the students' motivation would be strengthened.

- *Co-operation with New Course Development :*

  University staff have previously been involved with the generation and development of new courses at HE level within affiliated colleges, and it is anticipated that assistance could also be offered to FE course development. This could include the development of the new General National Vocational Qualifications (GNVQs).

- *Opportunities for Staff Development :*

  FE college staff would be invited to attend UCS and the University seminar programmes, and it is hoped that a reciprocal arrangement might also be possible. Informal staff development would take place throughout the scheme, as staff from all sectors share knowledge and experience.

- *Co-operation in the Maintenance of Quality Standards :*

  Expertise would be shared in maintaining quality standards. Where FEFC quality control requirements are introduced, comparable with HEFC requirements, HE partners could offer advice and assistance.

*Progress of Project, 1993 - 94*

The first phase of the project established the FE/HE partnership and identified a series of objectives all relating to the widening of access opportunities for the non-traditional student wishing to progress into higher education. In order to manage the developments and provide an evaluation process for the project, a Steering Group was formed which includes senior managers from partner institutions. To ensure longevity of the progression developments, the partnership structure was embedded into the University management system.

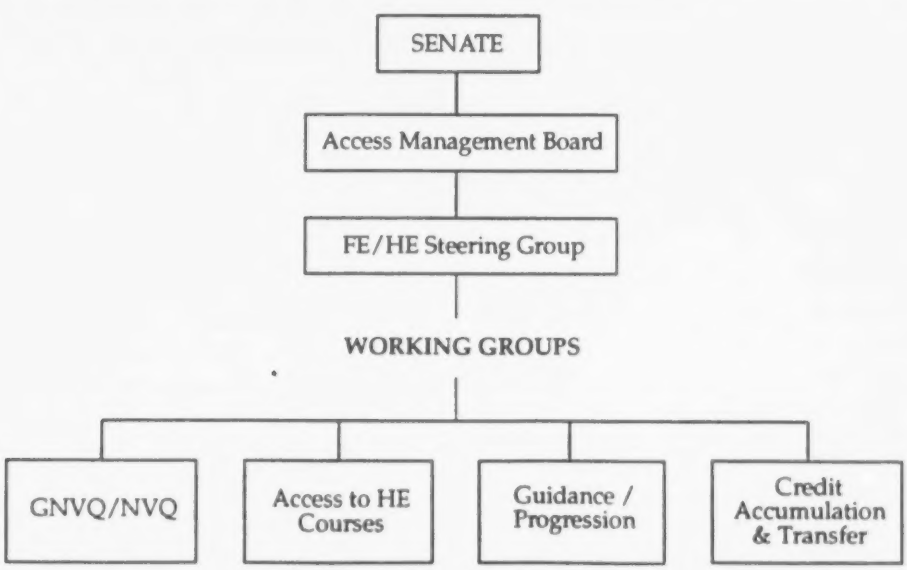


*Figure 1*

More flexible progression routes have been developed through a series of Working Groups established across the partnership.

The areas targeted for development were :

- NVQ/GNVQ progression routes into HE;
- Access/Foundation Courses;
- guidance through progression routes;
- credit transfer across the FE/HE boundary.

Since the initial establishment of these Working Groups 1 & 4 have combined to consider how the GNVQ structure can be embraced into the higher education credit framework. The development and dissemination process has been enhanced by running a series of workshops and conferences throughout the 1993/94 session these have included:

*Conferences*

*Progression Through Education: Alternative Strategies for Access to Higher Education - 20 May 1994.*

Speakers : Brian Allan, University of Salford
Professor David Robertson, Liverpool John Moores University
Peter Wilson, National Open Collage Network
Sue Rowlands, Manchester Open College Federation

*GNVQs as Progression into Higher Education, 16 June 1994*

Speakers : Judith Compton UCAS/GATE
Margaret Murdin, Wigan & Leigh College
Brian Allan, University of Salford

Separate reports are available for these conferences.

*Workshops*

- Mathematics content in GNVQ Engineering, Science and Built Environment;
- networking of Access Courses;
- APL/APEL procedures, links between FE & HE.

Working documents have been produced for each of these workshops.

*Project Outcomes*

Access/Foundation - curriculum has been developed in collaboration with further education colleges to meet the needs for progression into higher education programmes in the following areas:

- Art & Design;
- Science & Technology;
- Consumer Studies;
- Health.

Each of the pathways have been validated throughout the Universities process and certificated by the Open College Federation. This allows students to either progress onto the programmes at Salford, for which the curriculum has been aligned or apply to other higher education institutions through UCAS, using the OCF certificate.

*Student Recruitment 1993/94 :*

| | Enrolled | Progressed into Higher Education |
|---|---|---|
| Art & Design | 20 | 15 |
| Consumer Studies | 7 | 5 |
| Health | 25 | 19 |

Science & Technology first enrolment 1994/95

The structure of the course is such that they can be delivered within higher education as foundation courses or in further education as access courses. As from September 1994 courses will be delivered at three different institutions and the intention is that four further institutions will deliver the course from September 1995. The colleges within the partnership wishing to offer the Access/Foundation pathways are validated by both the University of Salford and Manchester Open College Federation. Development of new units is taking place in order to offer wider choice to students so allowing more progression opportunities.

- GNVQ - the project has concentrated on the aspects relating to Progression into higher education from Advanced GNVQs.

  Through a series of workshops admissions' tutors at the University of Salford and University College Salford have worked with tutors from FE partner colleges to identify the most suitable combination of Advanced GNVQ units to allow progression into specific higher education programmes. An attempt has also been made to establish the grade of pass necessary for progression. Work is now underway to consider the best practice for interviewing Advanced GNVQ students given the nature of the courses.

  Documentation on progression requirements is available.

***Project Evaluation***

The structure outlined in Fig 1 allows all aspects of the project to be moderated and evaluated at various levels on an on-going basis. Curriculum developed for the Access/Foundation course has been validated through this system and in addition through the Open College Federation validation process. Partner colleges who are delivering the Access programme have been validated through the universities academic process. The student results from the pilot programmes have been processed through the University system and tutors have produced Monitoring & Evaluation reports for each pathway.

All aspects of future developments through the project will be referred to the Steering Group which meets twice each semester.

# The Use of Hypermedia Techniques to Facilitate Flexible Course Selection in a Modular System

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*Abstract*

The purpose of the proposed research was to create a hypermedia demonstrator to support flexible course selection by undergraduates at the University of Sheffield. All the milestones for the first year of research had been reached satisfactorily, and a prototype demonstrator had been created and evaluated in a session on second year registration. One major outcome of the evaluation was the added benefit that would derive from having University-wide information available. This feature, added to positive evaluations from the Academic Registrar's Office, formed the basis for the second development phase which enhanced significantly the functionality of the system, by applying it to the entire University. The USHIR-REG system automatically assembled information on the module and course information from central databases and allowed students both to browse through the module information and also to select modules for their registration session, checking timetables, prerequisites and other requirements. A successful mini-evaluation of USHIR-REG was undertaken at first year registration, in which 29 'problem cases' were referred to the system. Every user found the system helpful. We consider that USHIR-REG provides a valuable demonstrator of the power of multimedia systems to integrate and make accessible complex information.

*Aims & Objectives*

The original proposal to the then UFC set out the background and objectives of the proposed research as follows:

1.1 *Any University wishing to introduce more flexible, module-based teaching strategies must confront the critical problem of how to support and register students in their selection of courses. This problem will become more severe with increasing student numbers; with the introduction of modularisation and semesters; with the growth in the practice of credit transfer; and with an in creasing number of mature students whose potential participation is restricted by a traditionally structured timetable.*

1.2 *Cost-effective resolution of these problems requires the on-line availability of high quality, detailed course information together with automatic methods for checking timetable constraints and student registration. No commercially available database system satisfies the triple requirements of: ease of student 'browsing', free module selection subject to checking of combinatorial prerequisites and timetable constraints; and on-line registration subject to quota restrictions.*

2.1 *The objective of [the first year of research] is to conduct a realistic feasibility study of the potential of USHIR [the University of Sheffield Hypermedia Information Resource] to solve the generic*

*problem of flexible course selection. The strategy adopted will be to produce a complete demonstrator for the School of Biological Sciences (a School which has already introduced a modular structure covering 33 entire courses and 8-10% of University teaching and thereby represents a critical test of the approach). The demonstrator will include full information about every module on offer in the School (including a brief description, its timetable, units, quotas, and methods of teaching), together with full information about all courses and staff involved, and will be used as an aid to registration staff in registration for the 1993/4 session.*

*The objectives, therefore, for Year 2 of the research are :*

*(i) to extend the module coverage to the Faculty of Pure Science and the Faculty of Social Sciences (together these account for approximately 45% of University students);*

*(ii) to undertake a detailed analysis of the use of the system for: initial data input from information returned by secretarial staff using a range of specially created templates; database maintenance and validation as modules change; and use of the system as an off-line 'browsing' system to assist in module selection prior to registration;*

*(iii) to use the system on-line at registration by trained academic registration staff in order to assist students in their choice, but primarily to enter and validate student-module data automatically, so that module uptake information can be monitored dynamically and appropriate management action taken.*

## *Methodology and Project Outcomes*

*Phase 1, 1992/3 :*

A report on the first phase was presented last year. The phase 1 demonstrator was designed to investigate whether it was feasible to develop a computer-based system for presenting timetable and course information on-line; whether hypermedia techniques would provide an accessible method for University staff to construct and maintain such a database of course and timetable information; and to evaluate the response of the students to such a system, with the intention of tailoring the system to the students' preferences. The prototype was constructed for the School of Biological Sciences, and was evaluated by first year students attempting to choose their second year modules. The full demonstrator for the School included photographs, affiliations etc. and research interests of all 111 academic staff within the School, together with the available course information (including descriptions, timetable information and prerequisites) for all 81 modules supported by the 22 possible Honours courses within the School at level 2, together with corresponding information for levels 1 and 3. The demonstrator supported both browsing and course selection. A standard interaction started with the student selecting their honours course, and the system then automatically entered the compulsory modules, prompted the student to choose from the available optional modules, checked that the modules selected came to the right number of credits, checked the timetable for clashes, and displayed the weekly timetable. A summary of the choices made, timetable clashes, and timetable could then be printed out for subsequent reference. The demonstrator was evaluated by first year students attempting to choose their second year modules. Reactions varied as a function of computer literacy. All those who were computer literate stated that they had decided their modules as a result, and said that they would use such a system if it was available, whereas none of the remaining four users made much use of it and would use such a system if available. 75% of the users said they considered the on-line time tabling a valuable strength (and 25% actually discovered fixed clashes in their initial module choices). The major suggestion for improvement (60%) was the need for more detailed module information (synopses etc.) than provided in the course handouts. A further important suggestion was the need for timetable information and

outline module information for modules outside the School of Biological Sciences. Overall, therefore, the evaluation session was very encouraging, with real benefit to 75% of the users, and valuable suggestions for program refinements and for University-wide practice.

*Phase 2, 1993/4 :*

In 1993/4, the University of Sheffield went modular, and also adopted the semester system. As part of modularisation, the central administration staff developed a database of module information and course information for the 2200 modules and 259 degree courses offered by the University. This gave us the opportunity of testing to destruction the capability of USHIR to cope with external (and rapidly changing!) databases, and of providing information about modules throughout the University. Consequently, we increased the scope of the system to cover the entire University, rather than just the Faculties of Pure Science and Social Sciences. The course selection system had to be completely rewritten, so that the data from the central FoxPro database could be automatically uploaded to the hypermedia system, and 'cards' created for each module and each course. See Figures 1 and 2 for representative degree course and module cards.

*Figure 1 - A Degree Course Information Card :*

The user has selected (via an initial menu) course BB12, Physiology and Pharmacology; and has then selected the level 2 (second year) course information via the buttons at the top. Note that 120 credits must be selected, and 90 of them are compulsory and 10 are to be selected from the list of approved modules, leaving 20 credits to be selected from the Unrestricted modules (i.e. any of the 2200 modules available in the University).

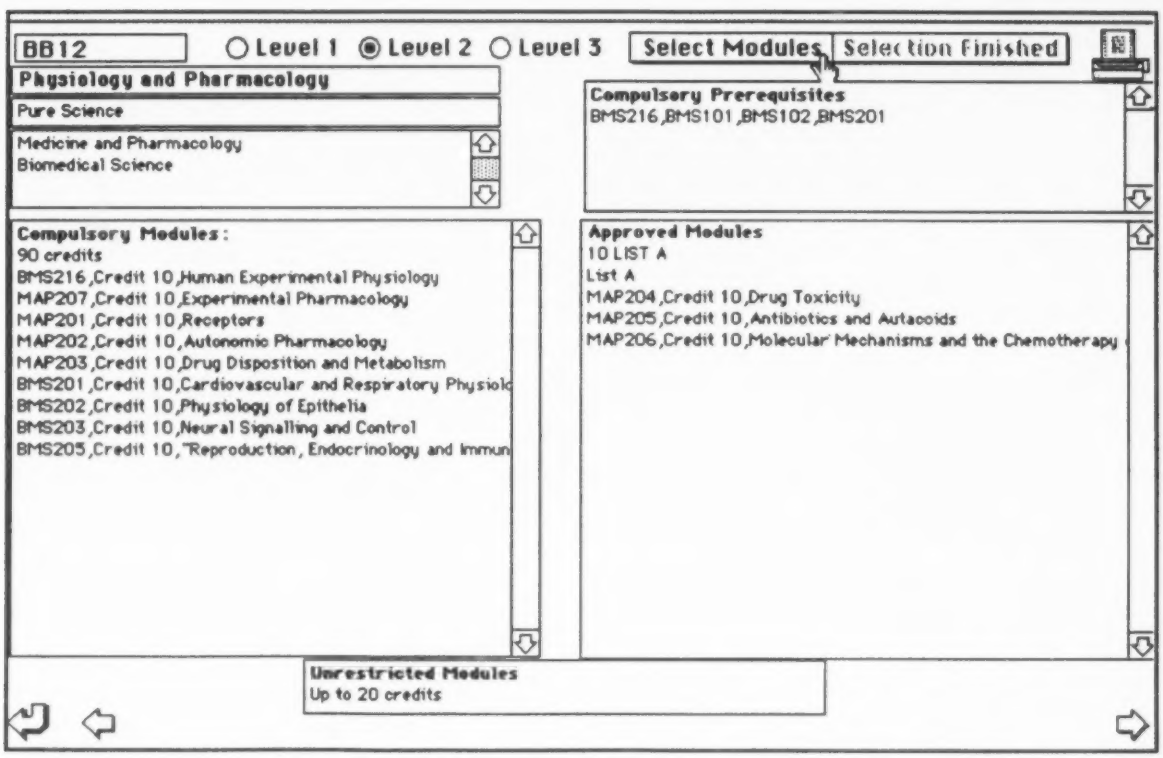

*Figure 2 - A Module Information Card :*

This gives all the information stored centrally in FoxPro database format in an easily accessible form. The cards are created automatically from the database. There are also several hidden fields, which are used to help problem solving (for instance, timetables are also maintained in a more compact form to support timetable checking).

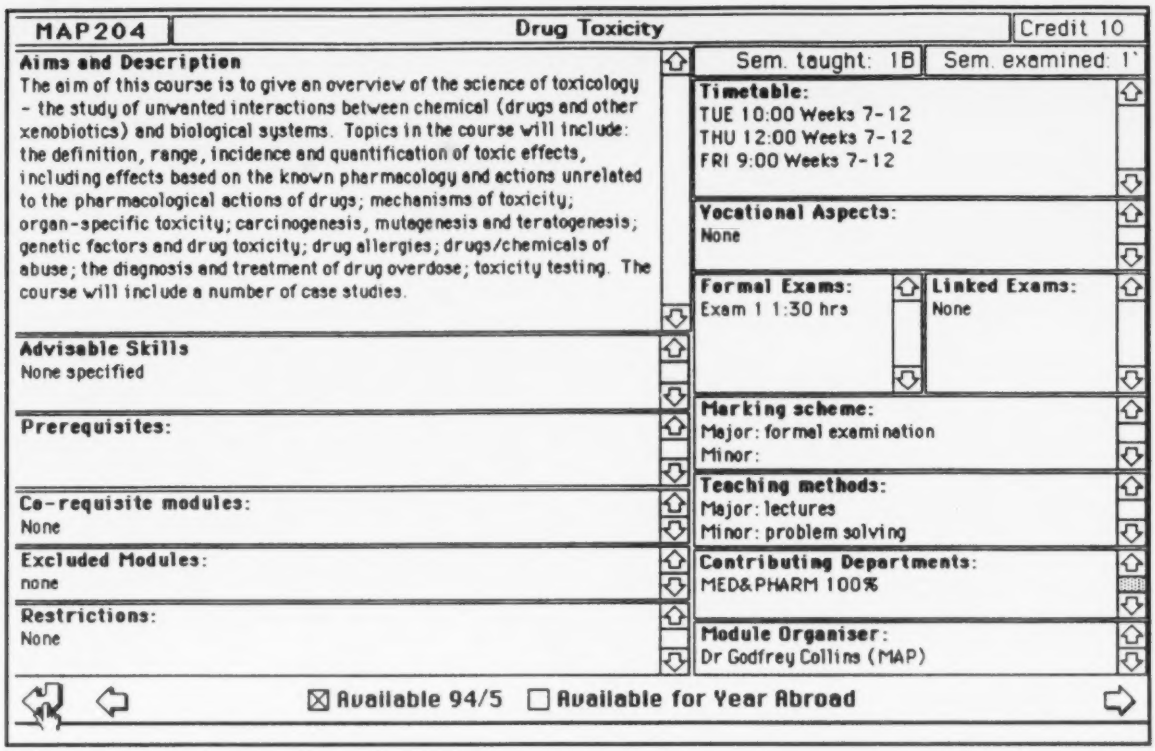
MAP204
Drug Toxicity
Credit 10
Aims and Description
The aim of this course is to give an overview of the science of toxicology - the study of unwanted interactions between chemical (drugs and other xenobiotics) and biological systems. Topics in the course will include: the definition, range, incidence and quantification of toxic effects, including effects based on the known pharmacology and actions unrelated to the pharmacological actions of drugs; mechanisms of toxicity; organ-specific toxicity; carcinogenesis, mutagenesis and teratogenesis; genetic factors and drug toxicity; drug allergies; drugs/chemicals of abuse; the diagnosis and treatment of drug overdose; toxicity testing. The course will include a number of case studies.
Sem. taught: 1B
Sem. examined: 1
Timetable:
TUE 10:00 Weeks 7-12
THU 12:00 Weeks 7-12
FRI 9:00 Weeks 7-12
Vocational Aspects:
None
Advisable Skills
None specified
Formal Exams:
Exam 1 1:30 hrs
Linked Exams:
None
Prerequisites:
Marking scheme:
Major: formal examination
Minor:
Co-requisite modules:
None
Teaching methods:
Major: lectures
Minor: problem solving
Excluded Modules:
none
Contributing Departments:
MED&PHARM 100%
Restrictions:
None
Module Organiser:
Dr Godfrey Collins (MAP)
Available 94/5
Available for Year Abroad

*Figure 3* - *Choosing the 20 credits from unrestricted modules :*

This figure shows the position just after 20 unrestricted credits (PSY101) have been selected. When the user first arrived here from the BB10 card, the "Modules Selected" field contained only the compulsory modules for BB10 and the approved module selected (MAP204). The user decided to select a Psychology module, and therefore clicked on the line "PSYCHO,PSYCHOLOGY" in the Department codes. This automatically created the "*Psychology modules*" button (top right). Clicking on this button displayed all the Psychology modules and their names and credits. Releasing the mouse on "PSY101" automatically creates the PSY101 button (top right). Clicking on this button lets the user select that module (or check the module card etc.). PSY101 carries 20 credits and so the full 120 credits have been selected. Automatic timetable checking indicates that PSY101 clashes with two of the existing courses, but the user elects to carry on anyway, rather than deselecting PSY101.

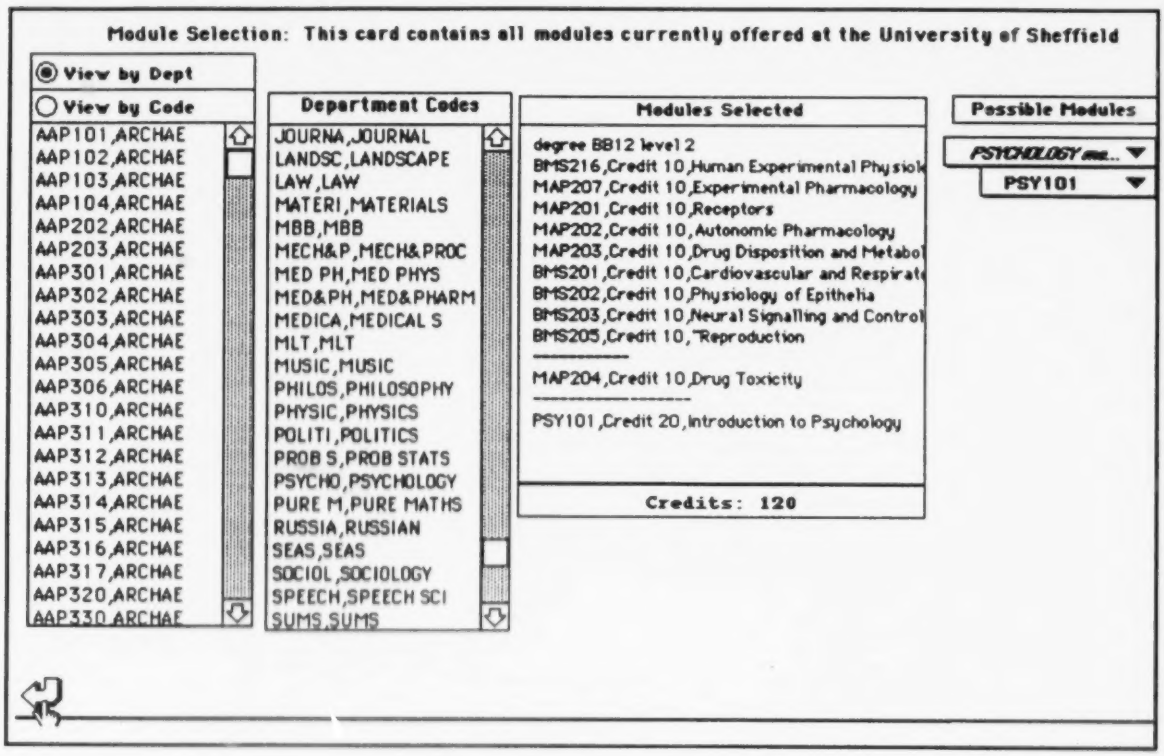

*Figure 4 - Module Selection Finished :*

The modules selected are shown, together with a compilation of their requirements, prerequisites etc. Clicking on "Check Timetable" provides a further timetable check, and constructs the timetable for each week in the two semesters, noting clashes where they occur. This information may be printed out (see Fig. 5) by clicking on the Printer icon (top right). If the user is not satisfied with the selection, it may be selectively edited without needing to restart (for instance, by deselecting PSY101) by clicking on "Redo Selection".

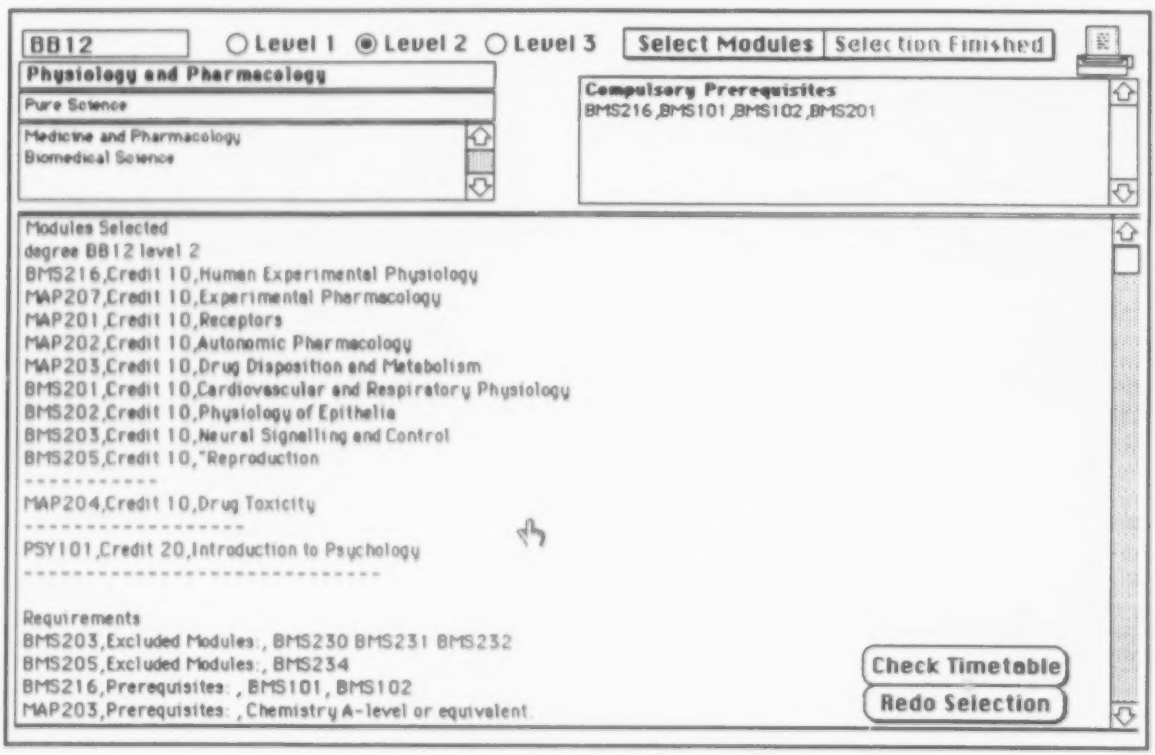


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*Figure 5 - The Course Selection Summary printout :*

It is printed in tabular form here to save space. Note the detailed Requirements information which the student should check himself/herself (it is not possible to automate this aspect). Note also the detailed timetable, in which any clashes are starred.

| Modules Selected | Timetable (* means clash) |
|---|---|
| degree BB12 level 2 | |
| BMS216,Credit 10,Human Experimental Physiology | Mon 11:00 PSY101 Wks 1-12,*,* |
| MAP207,Credit 10,Experimental Pharmacology | Mon 11:00 BMS201 Wks 1-6,* |
| MAP201,Credit 10,Receptors | Mon 11:00 BMS203 Wks 16-21 |
| MAP202,Credit 10,Autonomic Pharmacology | Mon 11:00 BMS202 Wks 7-12,* |
| MAP203,Credit 10,Drug Disposition and Metabolism | Mon 12:00 MAP203 Wks 16-21 |
| BMS201,Credit 10,Cardiovascular and Respiratory Physiology | Mon 12:00 MAP202 Wks 7-12 |
| BMS202,Credit 10,Physiology of Epithelia | |
| BMS203,Credit 10,Neural Signalling and Control | Tues 10:00 MAP203 Wks 16-21 |
| BMS205,Credit 10,"Reproduction | Tues 10:00 MAP204 Wks 7-12 |
| ---------- | Tues 11:00 MAP201 Wks 1-6 |
| MAP204,Credit 10,Drug Toxicity | Tues 11:00 MAP203 Wks 16-21 |
| ---------- | Tues 11:00 MAP202 Wks 7-12 |
| PSY101,Credit 20,Introduction to Psychology | Tues 12:00 MAP201 Wks 1-6 |
| ---------- | |
| | Wed 9:00 BMS201 Wks 1-6 |
| Requirements | Wed 9:00 BMS203 Wks 16-21 |
| BMS203,Excluded Modules:, BMS230 BMS231 BMS232 | Wed 9:00 BMS202 Wks 7-12 |
| BMS205,Excluded Modules:, BMS234 | Wed 10:00 BMS205 Wks 1-6 |
| BMS216,Prerequisites: , BMS101, BMS102 | |
| MAP203,Prerequisites: , Chemistry A-level or equivalent. | Thu 9:00 BMS205 Wks 1-6 |
| BMS201,Prerequisites: , BMS102. | Thu 10:00 PSY101 Wks 1-12 |
| BMS205,Prerequisites: , BMS102 | Thu 11:00 MAP202 Wks 7-12 |
| BMS216,Restrictions:, Restricted to students studying B100, BB12, CB71, C120, B940. | Thu 12:00 MAP201 Wks 1-6 |
| MAP207,Restrictions:, Restricted to students studying B200, BB12, B940, BF21. | Thu 12:00 MAP204 Wks 7-12 |
| PSY101,Restrictions:, Laboratory space restrictions. As unrestricted choice, preference will be for students in Faculties of Pure Science and Social Sciences without A-level Psychology. | |
| ---------- | Fri 9:00 MAP204 Wks 7-12 |
| | Fri 10:00 BMS201 Wks 1-6 |
| | Fri 10:00 BMS203 Wks 16-21 |
| Timetable clashes: | Fri 10:00 BMS202 Wks 7-12 |
| Mon 11:00 : PSY101 (wks1-6),MAP203 (wks1-12) | Fri 11:00 PSY101 Wks 1-12 |
| Mon 11:00 : PSY101 (wks1-12),MAP203 (wks7-12) | Fri 11:00 BMS205 Wks 1-6 |

Following this off-line authoring stage, a user version (USHIR-REG) was constructed which embodied all the information in a user-browsable format, and which could be used by a student to select their compulsory, approved and unrestricted modules. In addition to checking the credits, USHIR-REG was able to ascertain whether (and, if so, which of) the modules selected clashed in their timetables (see figures 1 to 4). No other system had been able to check this information. USHIR-REG also printed a summary of the courses selected, together with the requirements of each course (see Figure 5). This printout could then be used as the basis for registration. An important additional benefit of USHIR-REG was that the timetabling facility could be used off-line. In particular, it is possible for USHIR-REG to construct a list of modules which are compatible with the aggregate timetable of the compulsory modules for any given level of any given course. This list may then be printed and handed out to students attempting to register for that course.

*Project Evaluation*

USHIR-REG was evaluated at first year registration in Psychology (Sept. 94). Of the 300+ students wishing to register for the Psychology course, the majority had pre-registered, leaving a total of 39 who had an unusual profile of modules and were referred to the USHIR team. USHIR-REG was able to resolve the difficulties for 27 of these students. Remaining difficulties were caused by modules being 'full' or by difficulties in cross-semester balance of modules. All those who used it felt it made a valuable contribution, and considered that it should be available routinely for module pre-selection.

*Further Developments for 1993/4*

The HEFCE research is now essentially complete. In the two months funding remaining we are:

- completing the integration of staff information (research interests, administrative duties, photograph etc.) for all academic staff within the University into the USHIR framework;
- attempting to tune the data uploading procedures to a further change of database storage (in this case, a Microsoft Word document);
- generating further publicity for the USHIR-REG system both within the University of Sheffield (via discussions with Administration staff and by Newsletter publicity) and also internationally, by means of the World Wide Web Internet facility.

A version of the Year 1 USHIR with reduced functionality (i.e. no interactive problem solving) is accessible on the World Wide Web via the University of Sheffield Home Page (http://www2.shef.ac.uk/). The full Year 2 version should be available by November 1994.

*Reference*

Nicolson, R.I. and Tomlinson, P. (1991). USHIR: An Intelligent Knowledge-Based Hypermedia System. *Hypermedia*, 3, 1-33.

# EXTENSION AND CONSOLIDATION OF THE EVENING DEGREE PROGRAMME


*Project Co-ordinctor* Professor S. I. Lockerbie - Head of Division of Educational Policy and Development.

*Project Team* Mrs. Monica Cessford - Administrative Officer, EPD,
Mrs. Dorothy Kelso - Administrative Officer, EPD.

*Institution* University of Stirling, Stirling, FK9 4LA Scotland.


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*Executive Summary*

The purpose of this project is to increase wider access to HE through the expansion of part-time study opportunities in the evening. The extension of the Evening Degree Programme initially launched on a limited scale in 1990 will now allow a degree to be achieved by mature part-time students who for professional, domestic or other reasons are unable to attend during the day.


*Aims & Objectives*

1) To expand the Evening Degree Programme from approximately 30 FTE in 1991-2 to 150 FTE by 1994-5.

2) To increase the range of subjects available in the programme and to make it possible to complete a degree wholly by part-time evening study.

3) To encourage further developments in flexible provision by opening the programme to limited numbers of traditional full-time entrants and monitoring the results.

4) To use the experience gained on the project to undertake such other initiatives as will contribute to the University's policies on wider access and increased educational opportunity.

*Project Outcomes, 1993-4*

The programme has continued to develop very successfully on the lines laid down in 1992-3. As a result, the main features of the programme being largely unchanged, the present report is mainly an update on enrolments and academic results in 1993-4.

1) Complete three year sequences of courses for the General Degree were offered in: Business & Management, Computing Science, Sociology & Social Policy, History, Politics and Film & Media Studies. A two year provision was offered in French, German and Spanish and a one year provision in Education.

2) The characteristic of the Evening Programme is that it is based on the same semester-unit modular system as the standard daytime programme, and the units have the same content, assessment arrangements and degree status as their daytime equivalents. This common structure allows maximum flexibility. There is no restriction on an evening student registering for daytime units in substitution for, or in addition to, evening units. Depending on the number of units taken simultaneously the degree can be completed in a period of time ranging from 4 to 7 years. The average completion time will probably be 4/5 years. In most cases study will be wholly in the evening.

*Recruitment :*

Extensive publicity was undertaken in order to make the existence of the expanded programme known throughout Central Scotland. Response exceeded expectations and recruitment is still running comfortably ahead of targets. An aspect of flexibility which is inherent in Stirling's modular semester-unit system is that entry into the programme is possible at two points in the academic year : in September (Semester 1) and February (Semester 2). This feature has allowed a more precise control of the mechanics of recruitment and the close matching of student numbers to capacity.

1) The numbers who completed the programme at the end of 1993-4 were 380 compared to 233 at the end of 1992-3. These figures are a simplified statement of total numbers, because at any one time an average of 30 students are on acknowledged leave of absence for work-related or domestic reasons, while another group who for similar reasons fail to complete the programme of that particular academic year, apply to re-enter in a subsequent year. The total number of students in the system is thus considerably greater than the figures shown above, and there is every reason to expect that a substantial number in the leave of absence/non-completion categories will eventually gain the award of the degree.

2) A key characteristic of recruitment policy is that mature applicants are not required to possess traditional entrance qualifications, but may be admitted on the basis of lengthy diagnostic interviews which determine their potential to succeed in degree study. If immediate entry to the programme is judged premature, alternative access pathways exist towards which applicants can be guided.

3) It has not yet been possible to undertake a full analysis of the educational and socio-economic background of entrants to the programme. The further experience of 1993-4, however, has confirmed the following broad characteristics of the student body which were apparent in 1992-3 :

   i) the catchment area can be defined as being the whole of Central Scotland within a 50 mile radius. A significant proportion of students travel from the major urban areas of Glasgow, Edinburgh and Dundee, as well as from Central Region;

   ii) the average age of entrants lies between 30 and 40 years - the programme is successfully catering for those seeking re-training and career enhancement in their middle years;

   iii) the programme is seen as having vocational relevance by both employees and employers. There is very buoyant demand for the obvious vocational subjects, but a number of students across ALL the disciplines are sponsored by employers in both the public and private sectors;

   iv) the selection procedures have been successful in identifying and admitting significant numbers of formally unqualified students. While a number of students are middle class professionals, a greater proportion come from groups who are traditionally under-represented in HE.

*Academic Performance :*

Academic performance can be measured through the grades awarded to individual students at the end of each semester unit. The total numbers of grades awarded in 1993-4 were :

| GRADE | A | B | C | D | E | TOTAL |
|---|---|---|---|---|---|---|
| *Autumn 1993* | 49 | 240 | 43 | 2 | 0 | 334 |
| *Spring 1994* | 55 | 262 | 55 | 6 | 2 | 380 |

Out of 714 grades awarded in the course of the year, total pass grades (A, B and C) numbered 704 representing a pass rate of 98.5%. Moreover, compared to the usual spread of grades achieved by the traditional full-time undergraduate population, a very high number of the grades were in the A and B categories. This is a striking demonstration of the fact that, even without formal qualifications, mature part-time students perform to high academic standards.

*Academic and Administrative Support :*

A mature part-time student body, including many who are unfamiliar with a University environment, needs a comprehensive range of support services. The following services have been put in place:

i) an introductory course in Study Skills and familiarisation with the University as an institution is provided at different times during the summer and winter pre-entry periods and is normally recommended for all entrants;

ii) a Part-time Degree Office has been established to which recruitment guidance and progress procedures for the Evening (and part-time day) programmes have been devolved. It is not only an administrative office with specialised knowledge of the problems and needs of mature part-time students, but has a key role in welfare by acting as a friendly counselling bureau for students and encouraging social contact and good institution/student relationships;

iii) while Evening students have access to the University Prospectus and Calendar on the same basis as full-time students, it has become clear that the part-time body, and especially Evening students who may attend only once or twice a week outside normal hours, need more regular written guidance and more specific information than full-time undergraduates. The Part-time Office therefore issues, on a semester by semester basis, a special prospectus for the Evening Programme and a Handbook of Guidance specifically written for part-time students. The Office has also launched a newsletter (The Evening Extra) aimed at all part-time students which provides advance notice of academic and organisational matters, but also seeks to involve evening students in the life of the University by publishing items of general interest.

In addition to written material, whole group gatherings are arranged to foster a community spirit. There is a Welcome Party for all new entrants, and once per semester group counselling sessions are held to give an opportunity for airing problems, suggesting enhancements of the programme, etc.

iv) special Library provision has been made for the Evening Programme through ear-marked funding and the appointment of a librarian with special responsibility for Evening courses. Opening hours have been extended and a reserve collection of books and pedagogic material has been created specifically

for Evening students;

v) like all full-time students, Evening students have an Adviser of Studies to guide them through their programme and have the same access to all University welfare services. In addition most departments in the programme have appointed staff with special responsibility for the Evening Programme;

vi) it should also be mentioned that the University has revised its degree regulations to remove the barriers between part- and full-time study and to enable all students to accumulate credits in different patterns and at different speeds throughout the degree.

*Student Financial Support :*

In common with all part-time students, Evening Programme participants are not eligible for statutory financial support. This is a well-aired problem which requires solution at the national level. Pending statutory action, the University has successfully proposed to Central Region that it should make a discretionary fund available to support the payments of fees for necessitous part-time students resident in the Region. A sum of £10,000 approximately has been granted by Central Region which is being used for this purpose.

*Quality Control :*

The project is administered by a steering committee, chaired by a Deputy Principal, which reports to the main University committees. The committee has met once in each semester in 1993-4.

Standards on the taught units are maintained by the same procedures which apply to the corresponding daytime units : double marking of course work and examinations, involvement of the same external examiner as for the daytime equivalent units, and oversight by the same Chief Examiner in each department.

As in mainstream courses, evening students evaluate the quality of the academic teaching in departments by means of anonymously completed questionnaires. In addition a questionnaire focusing on the administrative aspects of the Evening Programme is issued. The 1993-4 exercise indicated a high degree of client satisfaction with the central steering of the programme. Steps have been taken to address areas where improvements can be made.

*Further Initiatives in Flexible Provision :*

Two new developments associated with the programme were undertaken :

1) Involvement of Full-time Students

The Evening Programme was initially designed for part-time mature entrants. Under the terms of the project grant, however, a pilot experiment is being conducted to allow voluntary participation in the programme by full-time students, the aim being to establish the extent of the demand for this form of flexible provision by the traditional undergraduate body. In 1993-4, a total of 60 full-time students enrolled for Evening programme courses, and their reactions were sought by a questionnaire. The data collected are still too limited to enable general conclusions to be drawn, but the pilot will be continued in 1994-5 and the results assessed in the final report.

## 2) Summer Academic Programme

In July 1994 a Summer Academic Programme funded by SHEFC was launched, in a form which included a special track for the Evening Programme. The project will be reported on separately (to SHEFC) but the main conclusion to emerge will certainly be that the Summer provision was more eagerly taken up by Evening Programme students than by any other section of the student body. In the further development of the Summer Programme, therefore, particular emphasis will be placed on extending provision for the part-time mature population, who in effect, will have available to them three periods of study in each academic year. Opportunities for flexible programme planning and accelerated completion of a part-time degree will thus be considerably increased.

*Conclusion :*

In its second year, the extended Evening Programme has again been extremely successful. Recruitment is ahead of target, and day to day operation has revealed no significant flaws. The academic results achieved by the mature part-time population can reasonably be described as much higher than average. In addition, significant steps have been taken to increase the range of flexible course provision which the University has on offer for the part-time population through the dovetailing of the Summer Academic Programme with the existing evening provision.

# DISTANCE AND STUDENT CENTRED LEARNING IN ENGINEERING

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*Abstract*

All of the modules in the distance learning degree programme, equivalent to two years of full time study in total, have now been developed into a self-study format. Important modules completed in 1993/94 included individual research project work and group-based design project work. Since the programme started in January 1992 access has been widened in successive years and there are now 42 students in total on the three years from a wide range of companies and locations and with a wide range of prior qualifications and experience. The overall academic performance of the students is good and the dropout rate is low. The programme is unique at degree level in chemical engineering.

*Aims & Objectives*

The overall objective of this project was to assist in developing key aspects of a new Distance Learning Honours Degree Programme in Chemical Engineering which was designed for personnel employed full-time in industry.

*Progress of Project, 1993-94*

*Student Numbers and Progress :*

The Distance Learning Programme was designed in partnership with ICI plc at Runcorn to provide a route to a BEng Honours degree in Chemical Engineering for personnel employed in the chemical and process industries who were typically qualified to HNC level. The first intake was in January 1992 and comprised 14 students from three companies including ICI. Increased flexibility in provision has been an important aspect of subsequent admissions to the course. The intakes in 1993 and 1994 were 13 and 15 respectively, giving a total number of 42 students currently on the three years of the course, from a total of 14 different companies and from a wide geographic spread. As well as chemical engineering, the students' prior qualifications and experience now include chemistry, mechanical engineering, electrical engineering and general engineering.

The overall progress of the students has been good, with a very low dropout rate, comprising only one student to date, and their academic performance compares favourably with that of the full time students. The maturity and commitment of the distance learning students and the ethos of the course as a partnership between industry and the University has contributed to this success. The first cohort of students is due to finish the course in December 1994, and this will provide the first evaluation of the complete programme.

*Course Structure :*

The Distance Learning programme has the same modular credit-based structure as the full-time

course and leads to the same degree. The curriculum and objectives are identical for individual modules although the teaching and learning methods differ. The full time course normally comprises 12 credits per annum over four years. The Distance Learning programme comprises 24 credits in total over three years (6, 8 and 10 credits in years one, two and three respectively) and essentially covers all the advanced subjects, with the more basic subjects exempted by virtue of the students' prior qualifications and experience.

In the first two years of the programme the modules are mostly equivalent to 'taught' modules in the full-time course and are based on written material designed for self-study which include self-assessment questions and tutor-marked assignments. This material is supported by contact with University tutors - in a small number of intensive workshops, in a Summer School, and by letter/telephone/fax. Assessment is by a combination of assignments, project work and examination. Feedback from the students and their industrial mentors on the quality and effectiveness of the self-study material has been very positive.

In the third year of the programme there are two important modules, namely an individual research project (worth 2 credits) and a team-based design project (worth 3 credits), which are rather different in curriculum and objectives from the earlier modules. The development of the teaching and learning methods for the research project and the design project was a major task during 1993-94.

*Individual Research Project :*

The main academic objective is to provide students with experience in the following: extending themselves in challenging and open-ended work; developing their own specialist knowledge base in a specific area; planning, communicating knowledge, ideas and results in an effective way with the supervisor and others during the project and presenting the final results effectively in a written thesis. The distance learning students had to meet these objectives with, if possible, a work-based project. This meets both the academic objectives of the course and the business objectives of the employers by encouraging the students to apply their knowledge to problems of relevance to the company.

For the full-time students, the responsibility for defining the general scope of each research project lies with the academic staff who provide a range of projects within their own interests and expertise from which the students can select. The approach adopted for the distance learning students was to reverse this responsibility. The students are given a full briefing on the academic objectives well in advance of the project start date and they then have to define their own project. This requires a written proposal outlining the justification, objectives and the resources available to support the project. The proposals are reviewed, modified if necessary, and then approved by the course team. The individual academic supervisors are then allocated a project from the final portfolio. The supervisors make a number of visits to the workplace during the course of the project.
This system appears to be working well and a wide range of challenging and interesting work-based projects is currently being carried out. An initial difficulty was to convince some of the students of the merits and benefits to them in attempting a difficult project with an uncertain outcome, rather than an easier project with a more predictable outcome. Initial concerns by companies about the confidentiality of information used in the projects have been overcome and there is good liaison between academic supervisors and students.

*Design Project :*

Plant and process design is an essential component of all chemical engineering degree courses, reflecting the importance in professional practice. Design studies take a number of forms, but it is essential that a comprehensive major design project is undertaken towards the end of the course.

The project can be undertaken on an individual basis, but it is much more effective if undertaken on a team basis (which is the normal practice for design work in industry), and this is the norm in the full time course and in most other UK chemical engineering degree courses.

The project involves the collection, analysis and interpretation of design data; the use of judgement and creativity in dealing with choices and areas of uncertainty; detailed and iterative calculations; communication of the results in a professional report. The design team needs to be effective in allocating and managing a range of tasks and in co-ordinating and cross-checking progress.

The first cohort of distance learning students will be attending Strathclyde for a 12 week residential period at the end of their final year, from October to December 1994, and much of the detailed design work will be undertaken then. However, the project requires considerable conceptual and initial work before then and future cohorts of students may have to undertake all of the project without this residential period. For these reasons a system had to be developed to enable a team-based design to be undertaken by distance learning students who were remote from each other and from the academic tutor. The following system is now being implemented.

The design teams were chosen by the academic co-ordinator with the deliberate policy of mixing students in terms of their employer and their geographic workplace. This would expose students in each team to a range of different approaches and experiences of design (rather than have all the students working in the same in-house style) and would ensure that all the teams faced the same challenges in communicating and working together. The different design remits allocated to each team were deliberately not work-based and would probably be completely new to all the team members. This was to ensure that all students had to deal to a similar extent with uncertainty and the need to use their own judgement.

To deal with difficulties the students might encounter in obtaining design data without easy access to university facilities, a comprehensive data pack was issued to each team. This was designed to contain raw data, for example original patents, and some superfluous data so that students were still required to extract and interpret their own information, rather than being spoon-fed the minimum 'correct' amount.

A preliminary meeting was held in June 1994 between the teams and the academic co-ordinator to agree the remit and other procedural issues. The system of establishing effective team communication and working methods was, however, not specified or arranged for them, but was deliberately left to the initiative of the students. The progress since then has been encouraging. The better organised teams have based their communication on ready access to a fax and use this to progress individual tasks and co-ordinate progress with each other and with the academic tutor at Strathclyde. One team member has accessed the University computer system via JANET and is able to extract additional data for the whole team from the specialist chemical engineering software and data bases.

A full evaluation will not be possible until the design project has been completed in December 1994. However, the initial progress suggests that team-based projects can be undertaken by the distance learning students using relatively cheap communications (fax) and provided that the students already have sufficient experience and confidence in working with one another. From the outset of the course, all the students are encouraged to network and to help one another and this message is reinforced at the workshops and at the Summer School. Without building up this experience in stages, it would be difficult to achieve effective team work starting from scratch in a major project at the end of the course.

***Project Outcomes***

All of the modules in the complete programme, equivalent to two years of full time study, have now been developed into a distance learning format. Sufficient feedback has been obtained on those modules which are based on written self-study material, and on the system of tutorial support, to confirm their effectiveness. The methods which have been developed to deal with research projects and design projects appear to be working well. The overall perception of the programme from industry and from the chemical engineering profession continues to be very positive.

***Future Work :***

In order to develop a complete course structure within a short time scale, the emphasis has been on using teaching and learning methods and technologies which are relatively well proven. Now that an effective course structure is in place (which is unique within Chemical Engineering at degree level) there is considerable potential for continual improvements through the selective use of new technologies and methods. Two aspects currently under consideration are: computer-based learning; enhanced tutor/student communication through video conferencing.

At present it is not mandatory for the students to have their own PC throughout the course although access is arranged for specific modules, but it is feasible for this to become a requirement. Access to a PC and modem link would enable course material and tutorial feedback to be provided via electronic mail systems and file transfer packages. Material could be provided to students in a more phased manner, which would help pace and support the self study. A variety of multimedia teaching material could be incorporated into selected modules to enhance the effectiveness of the written material.

# Staff and Student Development Programme for the Introduction and Evaluation of Peer-Tutoring in Undergraduate Courses


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*Abstract*

The main purpose of the project was to develop peer tutoring in each faculty of the university as an integral part of the teaching and learning strategy. Completed projects have been received from participants in the departments of Mathematics, Business Management, Music, Physiotherapy, Art & Design, Education, Engineering, Nursing, Biology, English and Computer Science, and a non-academic peer-support programme has been developed by the University Student Counselling and Guidance Service. The project appears to have achieved its objectives very successfully. In addition, the findings of all projects are being written up to form a Peer Tutoring Resource Pack for staff who wish to implement future peer-tutoring projects.


*Aims & Objectives*

The main purpose of the project was to develop peer-tutoring in each faculty of the university as an integral part of the teaching and learning strategy. We have defined peer-tutoring in this context as

> A structured way of involving students in each other's academic and social development. As a reciprocal learning experience it allows students to interact and develop personal skills of exposition while increasing their knowledge of specific topics. It is thus, an involvement that can benefit both tutors and students.

In addition, the project hoped to achieve the following aims :

(i) to help students to achieve their full potential as active learners;

(ii) to develop students' confidence in articulating their own views and interpretations;

(iii) to encourage participation in teamwork and the use of associated inter-personal skills;

(iv) to allow staff to make optimum use of class contact time by introducing new methods of the dissemination of knowledge.

These longer term aims are implicit in the more immediate objectives of the project, namely :

(i) to raise awareness of the scope and potential for peer-tutoring amongst staff and students;

(ii) to pilot a range of peer-tutoring projects in a series of undergraduate modules across the university and to evaluate the outcomes;

(iii) to disseminate the information and outcomes of the pilot projects in order to extend the programme to additional modules;

(iv) to develop peer-tutoring support packs for staff and students;

(v) to provide training of staff on a departmental basis.

The project has been funded for two years and has now reached the 2 year marker point.

*Methodology*

To develop the project within each Faculty of the university, academic staff were asked to volunteer ideas for peer-tutoring projects which they would like to implement. 17 members of staff across all campuses agreed to take part.

Carole and David Baume from Milton Keynes were selected to act as trainers because of their encouragement of innovation and good practice in teaching and learning in Higher Education and their involvement with SCED.

Four training workshops were held in the first year of the project. The aim of these was to define and refine concepts of peer-tutoring, to explore peer-tutoring models from extant literature, to assess each participant's specific proposals and to generate evaluation methods and criteria. Subsequent workshops were used to monitor progress, analyse problems and suggest remedies.

A total of eleven peer-tutoring or peer-assessment schemes were implemented. Staff maintained frequent contact with the project researcher who offered advice on all aspects and research design, questionnaire construction and evaluation protocols. It was necessary to tailor specific projects to meet the needs of individual student groups.

*Progress of Project, 1993-94*

The workshops organised by Carol and David Baume were extended into 1993-94. The final workshop gave a more substantial review and conceptualisation of participants' experiences, and involved drawing up individual action plans and institutional guidelines for good practice on peer-tutoring. There was a final clarification of the need for further educational, staff and student development to assure the effective implementation of peer-tutoring at the University of Ulster.

The expertise gained in the initial projects has now been passed on to a second group of participants and a chain of dissemination has been established. The findings of all the projects have been written up to form a Peer-Tutoring Resource Pack, which is in the process of production and will be ready for the New Year. This will act as a manual of instruction for staff wishing to implement future projects.

*Project Outcomes*

Completed projects have been received from participants in the departments of Mathematics, Business and Management, Music, Physiotherapy, Art & Design, Education, Engineering, Nursing, Biology, English and Computer Science, and a non-academic peer-support programme has been developed by the University Student Guidance and Counselling Service. Evaluation of

these projects has been by means of student tutor/tutee questionnaires, and responses across the departments have been very positive indeed. Students valued the heightened rate of involvement which peer-tutoring introduced to their courses.

Tutors within the projects stated that they increased their subject-specific knowledge, that the teaching experience had improved their sense of personal adequacy, and that they enjoyed being part of a productive group.

*Outcomes for Students*

Several projects specified learning outcomes for students, such as improvement in subject-specific knowledge, autonomy, interaction and communication skills, and initiative. These learning outcomes have generally been achieved by allowing students the opportunity to practice these skills in seminars and other group-work sessions. A study is presently being undertaken which aims to examine in more detail the specific learning outcomes for students.

*Project Evaluation*

The project appears to have successfully achieved its objectives. Staff have recorded positive views about peer tutoring and their commitment may be deduced from the fact that most have volunteered to return to the 2nd phase of the project and to act as mentors/trainers for incoming colleagues. Individual pilot projects from the various faculties also enjoyed a high level of success. Staff were impressed by the flexibility of peer tutoring methods and are eager to extend their range to additional modules. Those who concentrated on peer-assessment methods reported particular success.

Staff felt that once the need to function as sole critic and assessor was removed, they were able to be less judgmental, which allowed them to establish a better working relationship with students. Staff also found that they could introduce different perspectives in their subjects with greater ease and that these widened their students' understanding of the subject matter.

# FLEXIBLE PARTNERSHIP PROGRAMME FOR NON-TRADITIONAL STUDENTS

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*Abstract*

The Flexible Partnership Programme for Non-Traditional Students aimed to widen access for non-traditional students in the local region through developing new degree courses in new subject areas in partnership with local colleges. In particular the project has focused on developing 2+2 degree courses with local colleges within the framework of a partnership model. Consolidation and extension of the areas developed successfully during the first year of the project have been the principal emphasis of this year's work. Key areas of growth for 1993-94 include staff development, quality assurance, development of a 2+2 General Science degree and extension of the Part-Time Degrees Programme. Underlying these approaches was the need to strengthen the 2+2 partnership model, extend good practice, and ensure coherence, communication and quality.

*Aims & Objectives*

The project aimed to build upon the University's successful Part-Time degree and embryonic 2+2 degree programmes in order to widen access to higher education in the West Midlands through developing additional partnerships within an established circle of collaborating local colleges of further education and increasing the choice of subject areas available to non-traditional students.

Specifically the project undertook to expand provision

- into new subject areas and University departments;
- into partnerships with new local colleges of further education;

and was intended

- to involve colleges of further education in Part-Time degree work for the first time;
- to make 2+2 and Part-Time Degree credit interchangeable;
- to allow transfer of credit between non-traditional and older established degrees.

The project also undertook to address

- relevant curriculum and staff development;
- the preparation of support material for use in the University and the Colleges;
- the transition between Colleges and the University for 2+2 degree students;

The project timetable is September 1992 - July 1994, with the major impact beginning to be felt from the academic year 1993-94.

*Progress of Project, 1993-94*

Several new 2+2 degree programmes began operating in October 1993, together with the involvement of other local FE colleges in the 2+2 partnership. Nine local colleges are now involved. The new degree programmes include European Studies, Environmental Studies, Sports and Leisure Studies, Labour Studies and Women's Studies as a minor within Social Studies.

Specifically development occurred in the following areas during the academic year 1993-94 :

a) *Staff Development :*

Staff development continued to play a central role within the Flexible Partnership Programme and it is now an integral part of Warwick's 2+2 degree programme. Events in the staff development programme included focusing on subject specific issues and administrative/managerial issues, aimed at both College and University staff. During 1993-94 events have included:

- 2+2 Admissions Workshop;
- Teaching and Learning of Non-Traditional Students;
- Future Strategies for Staff Development;
- Assessment and Environmental Studies;
- Various subject seminar days;
- Teaching of Research Methods.

Positive feedback was received from those who attended the events. Staff development has played a significant role in enhancing relationships and establishing a network between the Colleges and the University.

b) *Development of a 2+2 General Science Degree :*

The current 2+2 degrees programme offers a wide range of degrees within the Social Sciences and Humanities with Sciences being under-represented. Development of a 2+2 General Science degree is an attempt to redress this imbalance. Establishing an Environmental Studies 2+2 during 1992-93 paved the way for advancing a General Science degree in an area which, for various reasons, has been more difficult to make attractive to non-traditional students. Following the model of previous 2+2 degree programmes, a General Science 2+2 working Party consisting of College and University staff has been established to develop the curriculum outlines. Owing to changes in Government policy in relation to student numbers it is likely that this degree programme will not now be introduced until October 1996.

c) *Transition of 2+2 Students between Colleges and University :*

In October 1993 the first cohort of year 3, 2+2 students (Social Studies) began the second half of their degree programme at the University. Interviews were held with a sample of 2+2 Social Studies students and lecturers to find out how the students had experienced the transition from the Colleges to Warwick, with the aim of improving future practice. A 2+2 student handbook

on guidelines for the transition will shortly be produced with the assistance of students. Year 3 examination results indicate that 2+2 students have performed as well as and in some cases better than younger students.

d) *Quality Assurance :*

The partnership model is now firmly established as a key component of the 2+2 degree programme and this has facilitated the development of quality mechanisms. Formalised management and organisational structures have evolved from the processes of establishing a 2+2 degree programme. Monitoring and reviewing procedures are in place which ensure quality in terms of academic standards and student and staff experiences. This includes review visits by the University to the Colleges which involve discussions with both staff and students. The Colleges have their own quality mechanisms in place and in many cases it is a matter of marrying the colleges' quality assurance needs with those of the University.

e) *Extension of the Part-Time Degree Programme :*

The Part-Time degree programme caters for a different group of adult students compared to the 2+2 degree programme as many on the former degree programme are in full or part-time employment. A wide range of Part-Time degrees is now available although there are none, as yet, in the science area. Discussions are under way to offer a Part-Time mode to the Environmental Studies 2+2 and other 2+2 degrees with the possibility of some of the courses being taught in the FE colleges.

Expansion has not been confined to the curriculum but includes expanding student numbers through the promotion and marketing of Part-Time Degrees in the local area. Two surveys were carried out with different sectors of local employers to assess their level of interest in the Part-Time degree programme. Reports were produced and follow-up work with employers who are interested is currently being undertaken.

*Project Outcomes*

The project outcomes have been wide-ranging.

- a partnership model between the Colleges and University is firmly established, including new college members;
- 2+2 provision has been expanded into new subject areas and University departments;
- the management and organisational structure of the 2+2 degrees programme has been successfully embedded within the University structure;
- establishment of quality assurance mechanisms;
- monitoring and review procedures to improve the quality of experience for 2+2 students;
- a wider choice of degree and subject areas is available to students;
- regulations have been established for flexibility and transfer between Part-Time, 2+2 and single/joint honours degrees;
- regular staff development events have enhanced links between the Colleges and University, improving communication and practices;

- links have been established with local employers in relation to the Part-Time degree programme to further the educational needs of employees.

*Project Evaluation*

- In summary the project has been completely successful in achieving its main objectives. New 2+2 programmes have been identified and developed by joint College-University teams in each of the specified subject areas, and several new Colleges and University departments have become involved.

- Quality assurance mechanisms are now in place at all levels through joint College and University committee and the University's regular structures and procedures.

- The establishment of a coherent management structure through the establishment of subject committees and a new board of Flexible and Continuing Studies has ensured good practice, communication and liaison between the Colleges and the University.

- The success of the development with the Colleges is evidenced in part by the enthusiasm of partner Colleges and by the professionalism and energy which the partnership tapped in many college staff. Another sign of the success was the fact that the University had to decline a number of other College approaches and initiatives both from agreed partner institutions and from other Colleges in the region aware of the initiative and eager to take part.

- Student evaluation revealed satisfaction and enjoyment of the 2+2 degrees programme and a recognition that College and University staff are helpful and supportive. The degree has provided an opportunity for local adults who may lack 'normal entry qualifications' to participate in higher education. As one 2+2 student stated, it is 'the opportunity to take advantage of a system of education which for some is taken for granted but which for me at 18 was never an option'.

- Valuable links and exchanges have been established with other institutions within the Flexible Course Provision Programme such as Salford University.

- Less progress has been made in introducing Part-Time degree provision into the Colleges but it is an area which the Colleges are now responding to.

- The programme has helped the University further to integrate and mainstream issues concerning the widening of access into its policies and procedures. It is intended that future developmental work will continue to enhance the existing programme and continue to widen access for local non-traditional students.

# THE TRAINING OF TEACHING ASSISTANTS AND GRADUATE STUDENT TEACHERS


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*Abstract*

This project was established to provide training for graduate student teachers in the pedagogical skills of higher education. This was to be achieved through attendance at a training course and through the provision of distance learning materials. In this second year of the project, the course has been run twice and the distance learning materials have been completed. Evaluations of these during 1993-94 follow below.


*Aims & Objectives*

i) to provide good quality training for all teaching assistants at the University of Warwick;

ii) to offer the training course (above) to some teaching assistants and postgraduate student teachers from other institutions in the West Midlands;

iii) to provide distance learning materials for graduate student teachers to be available throughout the UK.

*Progress of Project, 1993 - 94*

a) *Training Course :*

Two courses have been provided during the academic year 1993-94, each attended by 30 graduate students teachers from Warwick University and other institutions in the West Midlands. On the basis of evaluations of the courses that were run during the first year of the Project (see FCE Annual Report 1993, p. 86 -7) the 1993-94 courses have been modified to meet the strongly expressed wish of participants for practical guidance in teaching methods. In 1993 - 94, changes to the training courses were therefore made as follows :

- the course has been reduced and condensed, and now focuses strongly on the practical skills of undergraduate teaching. It is held over an intensive two-day period and the programme includes:
  - an introductory lecture on the changes in higher education;
  - sessions on how students learn, small group teaching, lecturing, assessment and feedback, and evaluating teaching;
- a number of items included in the course material for Year 1 of the Project have been transferred to the distance materials ('The Guidelines') where they are more appropriately

placed. This includes for example, items such as plagiarism and computer assisted learning, knowledge of which should be in the repertoire of the graduate student teacher, but which are of less immediate urgency in the learning programme than the fundamental modes of teaching in higher education.

*Evaluation of the Training Course :*

Evaluation of the first course for the 1993 - 94 period was carried out through two questionnaires :

- participants were invited to comment on the quality of the course and its administrative arrangements;
- participants were invited to assess their personal learning as a result of having attended the course.

*Summary of the Evaluations :*

The responses of the teaching assistants and graduate students suggest that the course was successful in enhancing their awareness and understanding of the skills of teaching in higher education, in providing them with ideas and in encouraging reflection about their practice. There was support for the idea that this sort of course should be made more widely available. 77% of respondents 'would recommend the course to others'.

Details of personal learning reported to have taken place :

i) Those reporting feeling more confident :

| | |
|---|---|
| slightly less confident | 5% |
| slightly more confident | 40% |
| more confident | 50% |
| considerably more confident | 5% |

ii) Those reporting feeling more knowledgeable :

| | |
|---|---|
| slightly more knowledgeable | 25% |
| more knowledgeable | 55% |
| considerably more knowledgeable | 20% |

iii) Those reporting feeling more potentially skilful :

| | |
|---|---|
| slightly less potentially skilful | 5% |
| slightly more potentially skilful | 35% |
| more potentially skilful | 50% |
| considerably more potentially skilful | 5% |

iv) Those reporting feeling more reflective about their practice :

| | |
|---|---|
| slightly more reflective | 30% |
| more reflective | 40% |
| considerably more reflective | 20% |
| slightly less reflective | 5% |

In the further comments section of the second questionnaire the following were also reported : feeling inspired, awareness of the possibility of getting help, wanting to learn more, better rapport with students, more efficient, less isolated, 'I now know how bad I was'.

*Comment :*

In general these responses are considered to be realistic assessments by the course participants. The effect of the course was to improve students' understanding of their teaching role. But at the same time they were made aware of the limited nature of their current skill level. It would have been inappropriate therefore had a higher percentage of respondents considered themselves to be 'considerably more confident' for example.

b) *Distance Learning Materials :*

Evaluation 1 :

During the 1993 - 4 period, a first limited trial draft of these materials was issued to all participants on the training course. This consisted of the introduction and the sections on small group teaching, lecturing, preparing handouts and assessment. Volunteers were invited to write their comments on the script and to respond to a three part questionnaire seeking their views on the content, language and presentation of the text. 13 copies were returned.

There was considerable unanimity across the questionnaire responses:

- the content of the draft Guidelines was considered to be: potentially useful, a good resource and informative, but too Arts based. Singled out for praise were the sub-sections on 'Possible Problems';
- the language of the draft Guidelines was considered to be: too verbose, too wordy, too elaborate;
- the presentation (formatting) of the draft Guidelines was considered to be : insufficiently varied and inconsistent.

Evaluation 2 :

A thorough revision of these sections of the materials was then undertaken and sent to a review panel with further sections on taking a practical, helping students with their learning skills, using the Library, computer assisted learning, the institutional position of the student and supporting the student. This review panel consisted of staff development officers (5), lecturers across a wide range of subjects who had just completed their probationary year (11) and graduate student teachers (12). Individual sections were also sent to specialists in certain areas. Again reviewers were invited to write their comments on the script and to respond to the same three questions.

In general evaluations this time were considerably improved :

- the content of the Guidelines was considered to be: wide ranging and helpful, comprehensive while providing detailed guidance and practical advice, an excellent and useful document, practical useful and effective in terms of spelling out guidelines, overall looking good. Principal criticisms were of length, idealism and the neglect of difficult students;

- **the language of the Guidelines was considered to be: far more accessible than last time, appropriate, not patronising or bossy, fine, on the whole clear and lucid. Principal criticisms were occasional heaviness, gender distinctions;**

- the presentation of the Guidelines was considered to be: much improved, nice and accessible, generally well laid out. Principal criticisms were of an interactive review at the end of each section, occasional inconsistencies in formatting, and the need to isolate example handouts from the text.

*Project Outcome*

The distance learning materials for this project ('The Guidelines') have been revised again taking into account the proposals for amendments of the review panel. In the final version the material has been graded according to likely use, thus enabling the graduate student teacher to use the booklet as a resource over time. The text of the Guidelines, which will be made available to HEIs across the UK during the academic year 1994 - 95, is now as follows:

- About these Guidelines

- What is Good Teaching?

- Stage 1. Getting Started :
  - a note on your position
  - teaching small groups
  - assisting in practicals
  - drawing up handouts
  - using the Library

- Stage 2. Assuming More Responsibility :
  - giving a lecture
  - assessing the student
  - supporting the student
  - a note on managing the difficult student

- Stage 3. Becoming Experienced and Confident :
  - supervising projects
  - computer assisted learning
  - developing students learning skills

- Self Assessment Schedule

*Final comment on the role of evaluation in this project :*

These comments indicate the major role which evaluation has played in this project. The same evaluation procedure was used for the progressive refinement of both the course and the distance learning materials. Participants were invited to comment, their evaluations were built into revisions of course or Guidelines. The new models were evaluated again and revised once more on the basis of these comments. Evaluation has been an integral part of the methodology of this project and has contributed to the realisation of its aims.